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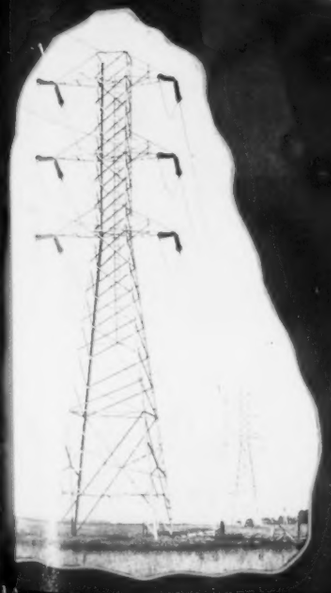

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Contents

Editorials 117

Has Arizona Stopped the Colorado Development? 123
By JAS. G. SCRUGHAM

A discussion of the problems facing the states concerned in the development of the Colorado River with an interpretation of Arizona's reasons for refusing to sign the compact. Governor Scrugham presents a plan for the development of the river.

Green River as a Source of Power 126
By RALF R. WOOLLEY

A description of the principal power sites that are available in the Green River in the states of Wyoming and Utah. Mr. Woolley believes that because there are apparently no feasible irrigation projects along the river, all of the sites can be developed without restrictions.

What Can Be Done to Improve Radio Broadcasting? 129
By J. J. AGUTTER

It is the belief of the writer that broadcasting of radio programs should be conducted by some public institution and should be handled much the same way as the municipal library is. The advantages of the municipally owned station are presented.

Designing the Power Company Building 131

The new building of the San Joaquin Light & Power Corporation in Fresno, Calif., is to be one of the finest examples of public utility company buildings on the Pacific Coast. This article is intended to answer the questions of the many persons who are interested in the design and plans of the new building.

Current Comment 120
Alaskan Electrical Industry Uses Modern Merchandising Methods 133
Mechanical Refrigeration Dates from Early Experiments in India 133
The Coast Outlet 134
Jobber, Dealer and Sales Agent 138
Industrial News 146
Books and Bulletins 151
Meetings 152
Manufacturer, Dealer and Jobber Activities 153
Personals 154
Trade Outlook 156

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New Directory Service

THE attention of our readers is called to a series of directories of electrical merchandise appearing serially in the Journal of Electricity.

On page 139 of this issue appears the third of this series—"A Directory of Electric Ironing Machines." The complete series includes the following directories:

July 15—Electric Vacuum Cleaners
Aug. 1— " Washing Machines
Aug. 15— " Ironing Machines
Sept. 1— " Radiators & Heaters
Sept. 15— " Ranges
Oct. 1 " Dish Washing Machines
" Sewing Machines

Oct. 15—Reprint of 6 Directories in Pamphlet Form

The primary purpose of these Directories is to give the western buyers of electrical merchandise specific and accurate catalog data, prices, and more important still, the name and location of the individual or firm here in the West from whom the particular product, or information regarding it, may be readily and quickly secured.

This service, while primarily for our readers, we believe is of equal importance and value to the manufacturers whose lines are listed and also their agents and distributors. These directories are also a corollary to our cross-indexed list of Manufacturers and their Western Representatives published annually (in the Oct. 15 issue), a service which has been much appreciated in the past.

This additional service is just one of the several recent improvements we have made to make this Journal of greater value to a larger number of readers.

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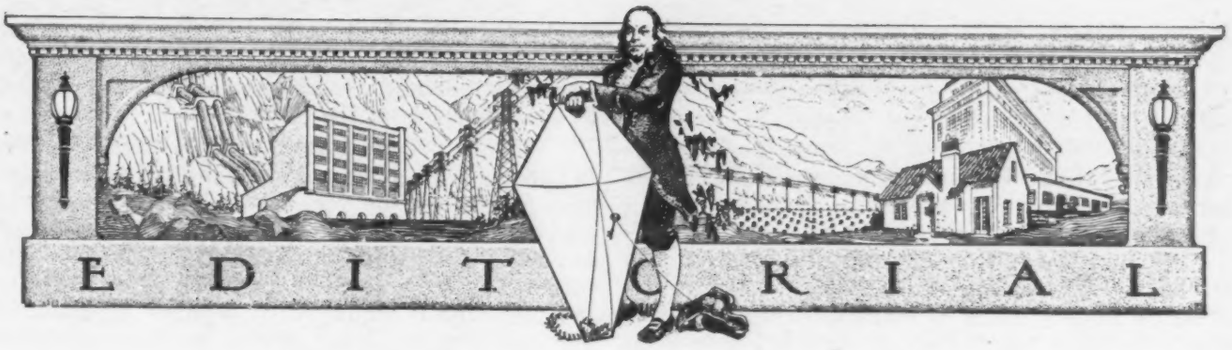


Dam the Colorado!

WHEN the movie hero swings outward over space with nothing between him and three thousand feet below but one suspender button, the audience gasps and prays for a quick release and for the button—even, be it said, that the man may prove to be that type of pessimist who wears both suspenders and a belt. We are in somewhat the same position in regard to the Colorado River situation. Arizona has held up the interstate pact, delaying for at least two years the construction of any dam on the Colorado and leaving the lower region of the Southwest crippled in its rightful development and open to a continuous danger of flood during the high water season. We can only ask Providence for a dry season and for an early remedy for the deadlock.

ON another page of this issue appears an article by the Governor of Nevada, outlining the practical aspects of the situation and suggesting his idea of a possible solution. In brief, Arizona objects to the pact because it feels that the river's water power is its greatest natural resource and that it should have the benefit from its development.

WE cannot but have some sympathy for Arizona's attitude—and yet what is to be done about it? Let the three lower river states handle the irrigation and power development jointly, says Mr. Scrugham. All right, if that can be properly safeguarded. But before anything of the sort can be done, the international problem with Mexico must be settled. Further, an agreement must be reached between the upper and lower states which will settle the question of apportionment of water between these districts. Then it must be decided as to just what portion of the water Arizona, Nevada and California respectively are to be allowed to use and, in order to insure the proper manipulation of the reservoir gates and the control of flood waters to the best interest of all concerned, the regulation of the reservoir should remain subject to United States control.

AFTER all this is done, it is not quite apparent just what advantage the suggested arrangement will have over that already rejected by Arizona. Moreover, this "Carrying out the will of the people" idea has its difficulties when it is necessary to settle upon a permanent policy for consistent development.

CERTAINLY something must be done. It is not possible to suppose that suspender buttons and flood years will hold on (or hold off, as the case may be) indefinitely. Let us set about the matter in an orderly fashion. The international aspects of the question can only be settled by the federal government. Why not now? There has already been too much delay and too much haphazard development allowed, the rights of which may have to be recognized. If the principles of division and future use of the water must be determined before the details of actual development are considered, should we not set about attacking the problem from this new angle?

WHEN it comes to the actual construction of the dam and the distribution of water and power, we are frank to state that we think it could be handled most expeditiously and most economically by private enterprise under strict government regulation. The situation is a practical one, however—and the question is not what is the ideal solution, but rather, what will Arizona accept. We believe the matter should be settled and provided proper safeguards are imposed, and with due warning of the dangers of any development under state control, we are willing to let the means for carrying it out be determined by the exigencies of the present facts. Only let us go forward.

Margin of Profit May Wreck Any Business

SEVERAL men were discussing the problem of distribution of electrical appliances recently. Each had different ideas on the subject. One suggested that the central station was the logical outlet for merchandising these products. Another declared in favor of a strictly electrical retailer entirely divorced from the contracting business. A third was strong in his conviction that the so-called non-electrical outlets would ultimately corner the business. Now the fourth may or may not have been wiser than his fellows, but he advanced the theory that the biggest problem in the question of distribution is not central station merchandising nor the ratio of contracting business to appliance sales in the case of the contractor-dealer, nor is it the non-electrical outlet. He believed that the root of the evil lay in the margin of profit on electrical goods.

We agree with his statement. The contractor-dealer has been accused of being a poor merchant and specific cases have been cited to prove this contention. How could the poor chap (devil?) be otherwise? Operating on discounts ranging from 25 to 40 per cent on his merchandise, he has been hard put to pay his rent, to say nothing of advertise, dress up his store front and elaborately decorate his windows. Those who have been successful have been super-merchants.

Before we are accused of exaggerating, it might be well to cite some figures. At the recent convention of the National Electric Light Association, the statement was made that a check of the first three months' merchandising business of 1923 of eleven central stations, amounting to $2,000,000, showed a net loss of 12 per cent. Staggering, isn't it, when one considers the facilities which these organizations possessed to properly conduct their merchandising department? It is sufficient proof of the fact that there is more than a grain of truth in the statement that the margin of profit on electrical goods is too small.

No one branch of the industry can solve this problem. A remedy must be found at once. Rather than question the efficacy of the contractor-dealer as the proper outlet for electrical appliances, let all branches join together in a study of this vital problem. Otherwise there will be more bankrupt contractor-dealers and the eleven central stations mentioned above may meet the same fate if they continue to lose a quarter of a million dollars every three months.

Selecting an Expert Because He Is Not One

WITH San Francisco discussing the possible retail sale of power from its Hetch Hetchy project and with Colorado Springs, Sacramento and other cities of the West discussing municipal power plans, it is becoming an imperative matter for the public to acquire an intelligent basis for judgment. Which calls attention to one of the intrinsic weaknesses of the situation—an explanation, possibly, for many of the mistakes made in the past in the name of municipal ownership. This is the difficulty of persuading one side to an argument to make use of expert advice on a subject on which all of the experts are on the other side of the question.

When a private company undertakes anything so important as going into the light and power business, it employs the very best advice available and studies the matter from its engineering feasibility, its costs and its possibilities of return. The city sets out to follow the same course. But it is afraid of any man who is employed by a power company or who ever was connected or even acquainted with a power company. And so, by the very nature of the case, it seeks out an "expert" who has had no first hand knowledge of power development—irrigation engineers, railroad men, bridge builders—even, sometimes, lawyers, orators and politicians. We have no wish to disparage the engineering qualifications of these gentlemen when they have such—but the fact remains that they may and sometimes do overlook entirely some very important phase of the subject. And the cities vote to undertake a responsibility which, under proper expert advice, they would have realized presented grave dangers. Why be so afraid of the man who knows something of the subject? The fact that electrical engineers and power experts are almost unanimous in their opposition to these projects has a significance which is not to be discounted by any cry of "partisan." It is a warning based upon experience and knowledge—and one which the public will do well to heed.

Municipal Broadcasting as a Western Solution

NO part of the country is without the reach of some sort of broadcasted program. On the eastern seaboard, there are so many excellent stations sending at all hours that there remains no particular problem of broadcasting from the standpoint of the dealer who would sell radio equipment. But the West is more sparsely settled. The larger centers, to be sure, have excellent stations managed by department stores, newspapers and banks, but there are still districts where no satisfactory local service is available and where good radio programs can be picked up only by those possessing the larger sets.

Now radio fans are made and not born. Most of the more expensive equipment is sold to customers who started with a home made outfit or a ten dollar "bargain" receiver and who gradually became interested enough to want a wider range. Where the smaller sets can pick up nothing better than phonograph music locally broadcasted there is not much prospect of building up this business and the market suffers in consequence. The broadcasting problem from its western angle is still only partially solved.

Who is to answer it? J. J. Agutter in this issue takes a glance into the future and looks to municipally operated broadcasting stations to meet the need. The broadcasting station as an advertising adjunct to a totally unrelated business he regards as carrying with it its own limitations. Certainly

its future is dependent upon other factors than the best interests, either of the listener-in or, what is tied in with that, of the seller of radio equipment. Some of the western districts have already had experience with broadcasting stations which have proved a greater expense to their owners than the advertising results were worth and so have been given up, wrecking a market already partly developed.

We have municipal organs and municipal bands and municipal opera. Why not a municipal radio program?

An Opportunity to Do a Worthy Deed

FOR months past it has been the practice of the circulation department of the Journal of Electricity to send to the California State Prison at San Quentin copies of that publication. These have been placed in the library or have been used in classes. Recently a letter was received from the secretary of the religious and educational department of the institution asking if it would not be possible to send more such material. To quote from the letter:

"We have one class in electricity and automobile ignition of about seventy-five students and also three classes in electricity provided by the Extension Division of the University of California. It is no small problem to provide good literature and semi-technical works for the large number of students enrolled in these courses."

While the Journal of Electricity sends all available material, it feels that here is an opportunity for some of its subscribers to do a worthy deed. If you have available any text-books of an engineering nature that no longer meet your needs or if you have copies of recent technical journals, we ask that you send them to our San Francisco office so that they might be forwarded to the prison.

San Quentin Prison has the reputation of being one of the most progressive penal institutions in the country for the rehabilitation of its inmates. We are glad of the opportunity to assist in this work and feel sure that our readers will take a similar stand.

A New Selling Argument for Better Electrical Installations

TO be able to say to a prospective customer that the use of a certain device or the installation of certain equipment will materially reduce insurance rates has proved a very effective sales argument. Witness the numerous installations of automatic sprinkler systems or the phenomenal sale of certain appliances for automobiles. To date the electrical industry has not been able to capitalize on this selling argument, perhaps because a very self-evident method of so doing has been overlooked.

Certain standards for electrical equipment and installations have been set up by the fire underwriters in the form of the National Electrical Code. Now this code represents the minimum requirements which must be met before a job will be accepted as a risk by the insurance company. The practice in the past has been to keep as close as possible to these minimum requirements. To say that a job which complies with the code is "good" practice is far from the truth. It is as close to "bad" practice as the contractor dare go and still have the job accepted by the inspectors.

There should be some reward for the installation that is better than the minimum defined by the code. If the contractor can prove that such an installation is safer than one whose standard is lower, then the insurance companies should be willing and glad to allow lower insurance rates on the building in which it is made. If such an allowance was made, the contractor would possess a strong selling argument for higher grade installations.

Steps toward this end have been taken by the Association of Electragists International and the preliminary overtures to the insurance companies have been favorably received. Further conferences will be held in the near future to determine whether or not such a scheme is practical. The association is to be congratulated for this forward step and the outcome of the conferences will be awaited with a great deal of interest by the entire electrical industry.

Get Them Into Your Store

HOW many women of your acquaintance make out a shopping list before they go down to make their Christmas purchases—and then stick to the list? "Why should I?" asks the woman, "I can't know ahead of time what there is to be bought in the stores. Something new is brought out every year. I believe in shopping." This attitude on the part of women shoppers does not discredit the worth of advertising (you will find that many women read the paper almost entirely to get the news of the shops) but it does bring out the importance of bringing the woman into your store and letting her look about for herself. It would hardly be exaggerating to say that fully half of the sales made by the department store are made without deliberate forethought on the part of the purchaser. She saw something she liked at a reasonable price and she bought it.

Has the electric shop any corresponding type of trade? How often does the customer enter the store of the contractor-dealer? She has a list of perhaps five appliances which some day she hopes to own and as she acquires the money; one by one at long intervals, she makes these purchases. In between times she buys her lamps or possibly takes in an iron cord to be mended. She has no idea, unless some means is devised for conveying the information to her, what other electrical equipment is made in which she might be interested, nor how inexpensive and alluring electric curling irons or toasters or heating pads have become since the last drop in price. The answer is that the woman must be brought into your store. A weekly bargain, a sideline which brings a "repeat" business, a rest room, a public telephone—there have been many different methods devised for attracting the customer to your doors.

CURRENT COMMENT

San Francisco Would Enter Power Business

Agitation has been started in San Francisco to have that city follow the example of Seattle and Los Angeles and enter the electric power business. With a 70,000-kw. hydroelectric plant nearing completion in the Sierra as an adjunct to the Hetch-Hetchy water supply system, the question of the disposal of this block of power has assumed major importance, with sundry factions suggesting many weird schemes for the utilization of this energy. Labor, the various civic organizations and many self-appointed advisors have rushed forward with proposals to the Board of Supervisors..

The situation at the present time stands as follows: The Public Utility Committee of the Board of Supervisors has advised that body to distribute the power as a municipal enterprise, but with one saving recommendation. Before any action is taken, the committee suggests that a careful study of the situation be made, that proposals be received from the two power companies for the purchase of the power wholesale, that estimates be made of the cost of construction of a complete distribution system and that prices be asked of the Great Western Power Company and the Pacific Gas & Electric Company for the purchase of the existing systems of those two utilities. No action will be taken until these various steps have been completed.

City Engineer M. M. O'Shaughnessy has on several occasions recommended that the city dispose of the power at wholesale rates. His department is charged with making the present study and submitting a report to the Supervisors. Should San Francisco enter the municipal power business the city will be in much the same situation as Los Angeles, for the capacity of the Moccasin Creek plant is limited to 70,000 kw. while the present load of the city is at least 110,000 kw. The additional power to serve this load would certainly have to be purchased from the existing central stations. At the present time Los Angeles is purchasing at least one-third of its power from the Southern California Edison Company.

The San Francisco Electrical Development League, after a careful study of the situation, by a competent committee, has passed the following resolution, which has been submitted to the Board of Supervisors:

Whereas, The San Francisco Electrical Development League, an organization having for its purpose the advancement of San Francisco and the State of California in things electrical, to the end that our citizens may have the best that is available, due to the advancement of science, and in particular to its electrical applications, and

Whereas, The proposal to extend the Hetch Hetchy power development project so as to include entering into the electrical distribution business in San Francisco has been brought to the League's attention, and

Whereas, The League having the best interests of the people of San Francisco at heart, has had a careful study made of the situation, and particularly of the additional responsibility which would be assumed in excess of those demanded by the power development of the Hetch Hetchy water-works scheme;

Now therefore, **Be it Resolved**, That the San Francisco Electrical Development League, after carefully considering the proposed electrical distribution idea for the City of San Francisco, hereby formally disapproves of this scheme, insofar as it goes beyond the recommendation of the City Engineer, for the sale of the Hetch Hetchy power at wholesale, for the following reasons:

(1) It would have a serious retarding influence on the city's development.

(2) The city is in no position to properly finance a distribution system, because of the enormous demands for money for other vital purposes, and the unsatisfactory condition of its finances.

(3) It is proposed to divert money voted and dedicated to water works purposes into the electrical distribution scheme.

(4) The city's existing municipal ownership venture's pressing necessities for additional capital should be first satisfied.

(5) Good business judgment dictates that a byproduct should be treated and disposed of at wholesale, if possible, with the least interference possible to the main object of any concern, which in the case of a city corporation is the the opportunities afforded its citizens for "life, liberty and the pursuit of happiness."

State Ownership Specter Rises in Washington

First preliminary rumblings of a campaign for state wide public ownership of the power industry in Washington were heard at a recent meeting in Seattle of what is known as the "Public Ownership League of Seattle." Plans were definitely announced at that time for bringing such a proposition before the voters this fall and committees were appointed to carry out the campaign. Oliver T. Erickson, Seattle councilman, was chosen president.

The scheme is frankly based on the "Water and Power" bill which formed a major issue of the California elections last fall and seeks to bring about state wide control of water power development and eventual state ownership of the entire power industry. The fact that the constitution of Washington limits the bonded indebtedness of that state to $400,000 which, as they admit, would not "erect a substation," does not seem to bother them, although just exactly how they propose to guarantee payment on bonds on a project of doubtful business success without implicating the state treasury is not clear.

The California act provided for the payment of interest and principal, if necessary, out of general state funds.

Of course, the city of Seattle has undoubtedly gone somewhat deeper into its municipal power project than it foresaw when it started—it may even be that it would be glad to unload some of its troubles upon state shoulders. But that is an explanation and not an argument in favor of the movement.

California has just gone through a most expensive campaign to convince itself that it does not want to go into the power business—expensive because any campaign must be expensive which necessitates the wholesale education of the people upon such a technical subject. California voted two to one against state ownership. It is to be regretted that Washington is to be forced so soon to go through the ordeal of learning the same lesson. The outcome must be the same—it is to be hoped that a sufficient number of people will realize this fact in time to prevent the movement ever getting beyond its initial stages.

Water Resources Being Developed at Rapid Rate

That activity in development of the water resources of California is still proceeding at a rapid pace is evidenced by the large number of applications to appropriate water which have been received by the Division of Water Rights, State Department of Public Works, during the fiscal year which closed June 30, 1923. All appropriative water rights in California are now initiated through application to the division, and the number being received is a very good index to the rate at which new hydroelectric power, irrigation, mining and water supply developments are being proposed.

During this fiscal year 580 applications for permit were made to the division, a greater number than ever received in a like period since the creation of the office. These applications contemplate the use of 106,000 cu. ft. of water per second, and the storage of 35,800,000 acre-ft., at a total estimated cost approximating $125,000,000. Under them it is proposed to irrigate 4,600,000 acres and develop 3,000,000 theoretical horsepower, in addition to use by a number of mining and municipal water supply projects.

Up to July 1, 1922, a year ago, there had been received by the Division of Water Rights a total of 2,923 applications, of which 979, or 3 per cent, were still awaiting approval or rejection. Those received during the past year brought the total number received up to 3,499. In spite of the large number of applications coming in, the number awaiting action has been reduced to 870, or 25 per cent of those received to date.

Up to a year ago the number of applications awaiting action had steadily increased, the largest number of actions during any fiscal year having been 376, during 1921-22. The number acted upon last year, 689, showed an increase of 83 per cent over this figure. Work in disposing of these pending applications has been speeded up by the division during the past six months in contemplation of a reduction of its personnel during the coming biennium.

Japanese Fishing Boats to Have Radio Equipment

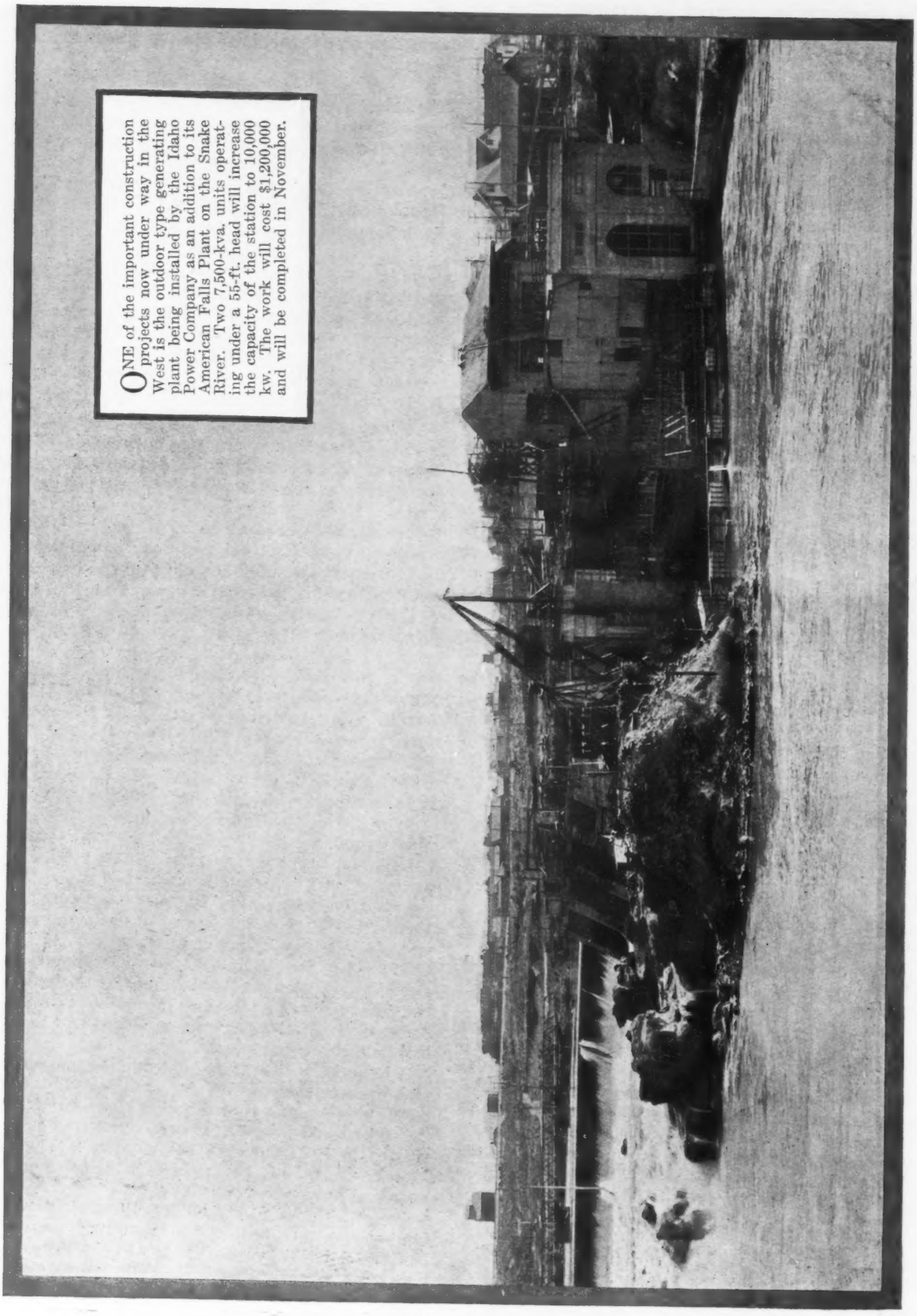
The chief of the Nagasaki Prefectural Marine Products Bureau, Nagasaki, Japan, together with a committee of men interested in marine products, is reported to be investigating the possibilities of installing wireless telephone outfits in the larger-sized fishing boats which have their base at Nagasaki, to enable them to communicate with shore when in difficulties, and to report the catch in time for their owners to realize on it. Reports to the Department of Commerce from Consul Hitchcock state that the recent success of the Fukuoka-Fusan wireless telephone tests has been the immediate cause of this interest in more practical applications of wireless telephony.

There are about 150 fishing boats on which wireless telephone equipment might be installed, and though they frequently go to distances from shore too great for direct communication, it is believed that a system of relays could be developed by which messages could be sent through the land. While wireless sets of Japanese manufacture will doubtless be favored where suitable equipment can be obtained locally, Consul Hitchcock believes that the owners of some of the larger boats ought to be interested in American-made sets.

Efficiency of Utility Plants Is Increasing

A remarkable increase throughout the United States in efficiency in the use of fuel and the production of electricity during the past four years is seen in a statement just issued by the Department of the Interior, through the Geological Survey. The statement indicates that electric public-utility power plants produced more electricity in 1922 than ever before, and that over one-third of the total amount produced was generated at water-power plants, thereby conserving over 20,000,000 tons of coal in 1922. New York is the leading state in the production of electricity by public utility power plants and California is the leading state in the production of electricity by the use of water power. One-fifth of the total amount of electricity produced by water power in the United States is produced by California hydroelectric power plants.

Reports on the monthly production of electricity and consumption of fuel by electric public utility power plants in the United States are now being published by the Geological Survey. These reports were started in 1919, covering the months of February, March, April, July, September and October in that year, and have been published each month, beginning with January, 1920. They show the output of central stations, municipal plants, plants generating electricity for the operation of street railways and electrified steam railroads, and the portion of the output of a few manufacturing plants that is sold for public use.



ONE of the important construction projects now under way in the West is the outdoor type generating plant being installed by the Idaho Power Company as an addition to its American Falls Plant on the Snake River. Two 7,500-kva. units operating under a 55-ft. head will increase the capacity of the station to 10,000 kw. The work will cost $1,200,000 and will be completed in November.

Has Arizona Stopped the Colorado Development?

By Jas. G. Scrugham
Governor of Nevada*

THE electrical power industry on the Pacific Coast generates some six hundred billions of kilowatt-hours of electricity per year. It has a million consumers, or more. The capital investment is at least half a billion dollars. These figures are all very imposing. The electrical industry has done much for the development and the prosperity of the West. Scattered all over intermountain and coast cities we have our numerous small plants, turning the wheels of industry, and supplemented by the power projects which have been installed on nearly every stream system of the West. But the greatest of all these stream systems—the Colorado—lies untouched.

THERE is no desire in Arizona on the part of anyone to delay the development of the Colorado River. Our mining industries need power. Yuma needs flood control and several of the prospective agricultural valleys need power for pumping. Consequently we are in need of early development. The states of Nevada and Arizona are both suffering from the same thing. The federal government owns too much of our territory. Here in our state they have reserved mineral rights and nearly all of our timber, all of our coal and water power sites, and have kept up the fiction that the Colorado River is a navigable stream. Coconino County in this state is the second largest county in the United States and the federal government owns nearly 90 per cent of it. It is going to be necessary, if we are to have a state down here instead of a number of boroughs for different cities throughout the country and different corporations to exploit, that the resources put here by nature capable of sustaining the populations, be used to secure those advantages.

—A prominent Arizona official.

We have in it the third greatest stream system of the American continent, exceeded alone by the Mississippi and the Columbia Rivers, annually discharging to the sea approximately seventeen million acre-feet of water. This water drops on an average nearly eight thousand feet from the snow-capped Uinta mountains of Wyoming to California—and it is not used. The St. Lawrence River, of approximately similar length, only drops six hundred feet, instead of eight thousand. The Tennessee River (with the famous Muscle Shoals project) only drops some three hundred feet, with a much smaller discharge of water.

A Menace Instead of an Asset

What is the matter? Why is the West in the mountain states and the Pacific Coast states not taking advantage of this tremendous industrial asset with which nature has endowed us? The answer is very simple. It is lack of cooperation, lack of agency or medium through which an understanding can be obtained. To some extent, too, it is due to a confusion of water laws in the various western states.

Instead of being the servant of the people, this river system is the master, with an ever present menace of inundation of thousands and tens of thousands of acres of the most fertile land in Arizona, and with the possibility of a great tragedy overhanging daily and hourly a very considerable portion of the Southwest.

Water control is a prime necessity. Who is going to do it? The nation is agreed that no one is going to put money in this, or any other project, unless there is a reasonable assurance of a fair and adequate return. The very magnitude of the problem, and the bickering and the jealousies of the various states add difficulties to its solution.

Three years ago Senator Pittman of Nevada introduced in the Congress of the United States a bill which would permit the interested states of the river basin to join together and form a compact as to a fair and equitable division of the water,—the Supreme Court of the United States having previously decided in cases, which I will not take the trouble to repeat, that each state was entitled to its fair and equitable share. Owing to the fact that this bill was introduced in the closing days of the Wilson administration, it was impossible to obtain action thereon; but with the incoming administration, Mondell, then the Republican floor leader, introduced what is called the "Colorado Pact Bill," which was promptly passed by Congress.

The seven interested states, California, Nevada, Wyoming, Utah, Colorado, Arizona and New Mexico, thereupon passed enabling acts. It was my pleasure to be a member of the first pact commission. We met in the city of Washington something over a year ago, under Herbert Hoover, Secretary of Commerce, who was appointed as a member to represent the federal government. It immediately became obvious that it was almost impossible to divide the waters of the Colorado or any other stream system between the states, for the reason that each and every representative felt it incumbent upon himself to claim everything in sight; and by the time the sworn claims of each of the states were summed up they amounted to something like four times as much water as ever had been in the river or ever would be. That is characteristic of our western brethren.

The Present Situation

A compromise immediately suggested itself. Geographically, the Colorado River system is divided into three grand divisions, two of which are in the

*Extracts from an address before the Pacific Coast Electrical Association.

United States. One of these consists of Colorado, Utah, Wyoming and New Mexico; the second grand division consists of Nevada, Arizona and California. The upper division furnishes eighty-seven per cent of the water; the lower division (within the United States) furnishes the remainder, thirteen per cent. However, the opportunities for improved development are far greater in the lower division than in the upper division.

After literally days and days and weeks and weeks of conference and argument of all possible phases of the problem, I finally came to the conclusion (as did the other members of the commission) that there was only one solution, and that was to suggest the even division of the water. The principle underlying this, I must confess, is only founded on the idea of fifty-fifty. There was no accurate basis on which we could make the division. However, the amount of water which will be allocated to each of the principals of the lower division, on the 50-50 basis, was far more than ample to take care of any reasonable expansion they might have for half-a-century or more to come, so the pact was finally agreed to upon this basis, and presented to the states for ratification. Six promptly ratified the pact. The seventh state, Arizona, refused to ratify the pact by a tie vote in the legislature.

Why Does Arizona Refuse?

The objections of the State of Arizona to the ratification of this pact are admirably stated in a letter from one of the high officials of the state. It is as follows:

> We are told that the reason for the Colorado River Compact's being entered into at all is that the upper states in the Colorado River basin are looking ahead forty years or more to conserve to their posterity, if you will, the heritage of nature.

That is admirably expressed. That is the position of the upper states. They say, if you put in any dam or conserving works in the lower basin, we will try to stop you by every means in our power. We do this for self-preservation. We do not wish you to have a prior right under the doctrine of appropriation to our rights, thereby holding back any future developments which might occur in our upper states. And they are right in that attitude, and if you and I were in the same position we would be negligent in our duty if we did not take the same stand. The letter goes on:

> In the lower basin Arizona occupies relatively the same position as does Colorado. California and Mexico will develop much more rapidly than this state, and unless an apportionment of the benefits of the river is made in the lower basin, Arizona is going to wake up and find that its greatest resource has been appropriated by California and Mexico.
>
> There are two questions involved in the matter: irrigation and power. There is a theory in Arizona which will probably either be sustained or proved impracticable within the next few months, that two and one-half millions of acres of land can be irrigated from the water in the river and that if this is true, there will be no water for Mexican land. If Mexico, which will inevitably develop sooner than Arizona can, puts the water to beneficial use, our opportunity will be lost.
>
> Then the power question: We believe that if California can charge us for oil and New Mexico for the coal produced within her borders, Arizona can charge California for power developed within our borders. We are anxious that our rights to do so be established before development is undertaken. The matter of the location of these damsites is of considerable importance to this state. It is generally agreed that whoever first develops power and puts in a distributing system, will inevitably get the monopoly. There is a strong sentiment in Arizona for states' rights, and the terms which were exacted from this state at the time she was admitted to statehood, which deprived her of the benefits of the great natural resources within her borders, impels many of our citizens to get for the state all that is possible from the development of this river.
>
> There is a strong sentiment here greatly antagonistic toward permitting Los Angeles and Southern California to obtain the benefits that are naturally attached to those who put in the first power installation. There is also a very definite sentiment that power works on the river should be owned by the State of Arizona, that is, those that are wholly within the state, and that the advantages to be obtained from them go to the state.

Briefly, that is the objection of the State of Arizona. It is clearly and concisely stated, without mincing words. It is absolutely necessary, before any further developments are undertaken, that we have some kind of sound basis to go on. We must regard the views and regard the wishes of the people of the State of Arizona. The situation is unfortunately now at a deadlock. The question faces the officials of every state and the citizens of every state: What are you going to do about it?

What Next?

I present here a suggestion,—the first time, I believe, it has been made public. It is not original with myself. It has been discussed by many of the leaders of the government and in the financial world. It is based on the following idea:

Several years ago it became necessary, due to the congested condition of the harbor of New York, to create a new mechanism for collaboration in construction work to develop the harbor, and there was created by joint legislative action of the State of New York and the State of New Jersey what is known as the Port of New York Authority. The nature of this agreement can be best understood by a direct quotation from the law creating it:

> "The Port of New York Authority is hereby authorized and directed to proceed with the development of the Port of New York" (or, as we would say, to have similar authority in the States of Arizona and California and Nevada to proceed with the development of the Colorado River). "Such authority or such agency is hereby vested with all necessary and appropriate power not inconsistent with the Constitution of the United States or of either of the participating states. This authority shall request the Congress of the United States to make such appropriations for deepening and widening the channels and such grants of power as will enable such authority to be effective." (Our text might take one more step to read: That such an agency as we might create request the Congress of the United States to make adequate provisions for flood control. Flood control appropriations are made for the Mississippi River and for every part of the country. Why should not the Colorado River receive such flood control appropriations?)

"It shall have power to apply to all Federal agencies, including the Interstate Commerce Commission, the War Department and the United States Shipping Board, for suitable assistance in carrying out said plan. It shall cooperate with the state highway commissioners of each state so that trunk-line highways as and when laid out by each state shall fit in with said comprehensive plan. It shall render such advice, suggestion and assistance to all municipal officers as will permit all local and municipal port and harbor improvements, so far as practicable, to fit in with said plan. All municipalities within the district are hereby authorized and empowered to cooperate in the effectuation of said plan, and are hereby vested with such powers as may be appropriate or necessary so to cooperate. The bonds or other securities issued by the port authority shall at all times be free from taxation by either state. The port authority shall be regarded as the municipal corporate instrumentality of the two states for the purpose of developing the port and effectuating the pledge of the states in the said compact. . . ." (See Laws of N. Y., 1922; Sec. 8 of Chap. 44.)

It seems to me that we have there a perfect analogy. It has been tried out legally. It appears entirely logical and practical for the States of California, Nevada and Arizona, after the pact is signed (it would, of course, be necessary to take care of the rights and needs of the upper states), for the three states to give authority to this entity or agency, which has the power to issue bonds, and which has the power to carry on construction work; in other words, modeled exactly after the authority given in regard to the Port of New York.

That is not the only example. Some years ago there was formed the Sanitary District of Chicago. While primarily of interest to the City of Chicago, numerous other agencies had to be brought in co-operation. The city could not do it alone; and the entity of the Sanitary District of Chicago was formed. This organization generates a large quantity of power as a byproduct, an incidental product, which I believe is sold through the Economy Light & Power Company of Chicago.

States Rights Defined

I do not propose that this authority, or entity, or agency, being created by the joint action of the three states should indulge in either the retail or wholesale generation or distribution or sale of power; that can be left to subordinate agencies which may or may not already be in existence; but the agency must be run primarily for the public interest, and the public interest alone.

Such an agency as I suggest would amply protect the State of Arizona, and would remove the objections that have been raised in the letter which I have just read. Such an agency could amply carry out the wishes of the State of California, because it is a public agency. Such an agency could carry out the desires of the State of Nevada, because under our form of government, the policies of the state are always the policies of the people, and are referred to the referendum and the ballot at different intervals, and if the people's wishes are not acceded to a change of government would rapidly ensue.

Developing Power Markets

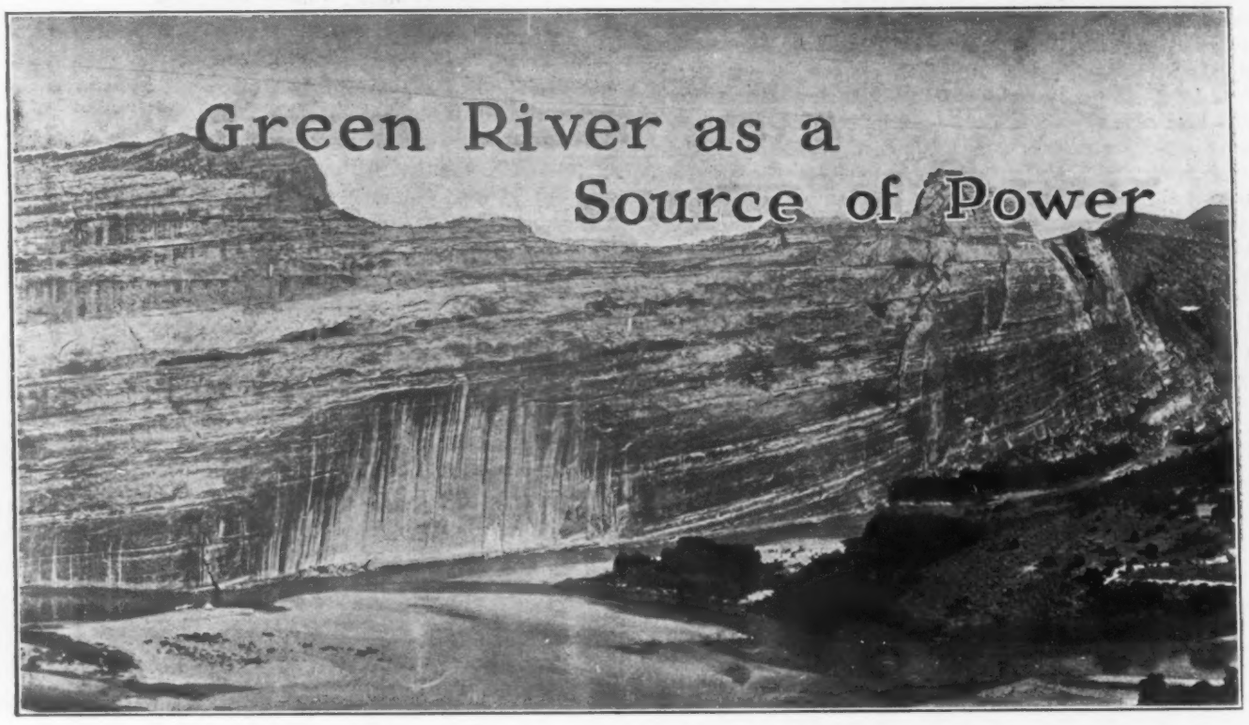
By this plan, I believe, the rights of the particular interests, who are engaged in the sale of power, would be also amply protected. There is no necessity of jeopardizing their rights in any way. This agency could be well used for the distribution of power so created. It may be said that the power market is well taken care of. Probably it is—and yet some 300,000,000 pounds of copper, produced in the mountain states is shipped to the Atlantic seaboard where it is reduced by the burning of coal under steam boilers,—whereupon a very considerable portion is shipped back again to the Pacific Coast. Why not take care of this somewhere in the West? That is our business. Then, too, we manufacture a great many million pounds of cyanide, almost entirely produced through electric processes. If my memory serves me there were many million pounds used as insecticide in the fruit industry; and I know that the State of Nevada consumes many millions of pounds in the silver and the gold mining operations.

There are unquestionably many other industries of this character which can be brought here which can use power, not necessarily horse power which has to be developed twenty-four hours a day, 365 days in the year. There will be flood periods when there will be an excess of power available from the waters impounded by this flood control dam, which should be put in the Colorado River. We ought to have the advantage of the use of that cheap power as a byproduct—a condition of things which normally and naturally belongs to our district of the country.

Prompt Action Urgent

A great natural asset—the greatest of our natural assets, perhaps—lies here almost entirely unused; instead of being a friend of man, it is a menace. A very considerable section of the Imperial Valley district of Southern California, at any time when tremendous floods occur, is in danger; there will be loss of life and property if they do occur, almost appalling to comprehend or conceive. But it can be stopped. It requires only an agency for promoting a mutual understanding between the states. If California, Nevada and Arizona will carefully study and consider the problem, I believe that without question the rights of each and every state can be fully and comprehensively protected by such legislation as I have suggested.

"Electric power which serves all industry sells lower in the market today than the pre-war price and has increased in twenty years its service from two and one-half billion kilowatt-hours to fifty billion, with the reasonable expectation that in five years more its service to all industry will be rated at one hundred billion hours annually. This is typical of the security of service in many lines, which promises to maintain in America the industrial leadership of the world."—Julius H. Barnes, President, Chamber of Commerce of the United States.



Green River as a Source of Power

By Ralf R. Woolley
Hydraulic Engineer, United States Geological Survey, Salt Lake City, Utah

FORTY-FOUR thousand square miles, or 18 per cent of the total drainage basin of the Colorado, are drained by Green River, and 32 per cent of the total discharge of the Colorado is contributed by this area.

Green River is the largest branch of the Colorado and until recently when the name of Grand River was changed to "Colorado River" the junction of Green and Grand Rivers formed the Colorado.

Green River rises along the west slopes of the Wind River Mountains in western Wyoming. Its course is southerly through southwestern Wyoming into Utah, thence east into Colorado and finally southerly and southwesterly through eastern Utah, emptying into the Colorado about 117 miles below the town of Green River, Utah.

Its length is approximately 700 miles and in that distance it drops from an elevation of 14,000 ft. above sea level at its source to 3,875 ft, above sea level at its mouth, an average fall of 14.46 ft. per mile.

A number of investigations have been made at different places along Green River to determine the irrigation and power possibilities but it was not until the recent survey made through the canyon stretches by the U. S. Geological Survey, of the Department of the Interior, that any definite data were available on the power resources.

All of the principal power sites are in the canyons within the 400-mile stretch of river between the towns of Green River, Wyo., a station on the Union Pacific Railroad, and Green River, Utah, a station on the Denver & Rio Grande Railroad.

The fall in the river between these two stations is in round numbers 2,000 ft., most of it in a series of eight canyons which still bear the names given to them by Major Powell at the time of his trip down the river in 1869.

Small basin areas, commonly known as parks, connect the canyons, except in the case of the stretch of river through the Uinta basin. Here the river flows in a meandering course across the basin and in a distance of 120 miles from the mouth of Split Mountain Canyon to the mouth of Jack Creek in Desolation Camp, the fall is 205 ft. or less than 2 ft. per mile. The current is sluggish, and frequent sand bars make the stream difficult to navigate even with small boats in low water season.

In 1921 the writer made a reconnaissance investigation of the power resources in the Upper Green River basin above Green River town in Wyoming. A number of small power sites could be developed on the tributary streams draining the west slopes of the Wind River Range and several small glacial lakes could be developed as storage reservoirs for both power and irrigation use.

The total amount of potential power available, however, is apparently less than 20,000 hp., and this is distributed among no less than eight different sites.

Other studies have been made of the Upper Basin to determine the irrigation possibilities. These were conducted by the federal government through the Reclamation Service in cooperation with the state of Wyoming and also by the state itself. The results of these studies indicate that more than

Horseshoe Canyon Damsite—Flaming Gorge Development.

400,000 acres of land are susceptible to irrigation from Green River and its tributaries, above Green River, Wyo., and this fact is one of the serious factors which must be considered in determining the future power possibilities in the canyons below.

As early as 1908, some studies were made by the Reclamation Service of the Brown's Park reservoir site, including a survey of the Brown's Park area, and a dam site at the head of Ladore Canyon, also some drilling was done at the dam site.

Then in 1914-15, a survey was made of the Flaming Gorge reservoir site and the dam site in Horseshoe Canyon was drilled. The results of these investigations indicated that the Flaming Gorge is the better project, being larger in storage capacity and more easily accessible.

Along with the work done at the Flaming Gorge site a survey was made of the Ouray reservoir site which involves that stretch of Green River in Uinta basin with a dam in the head of Desolation Canyon.

All of these surveys were made with the view of determining the best method of regulating the waters of the Colorado and putting them to the best use. Two major plans were proposed.

(1) A series of reservoirs on the major tributaries.

(2) A large reservoir at Lee's ferry or Boulder Canyon.

The compact lately drafted by the Colorado River Commission and ratified by all of the states interested in the Colorado River basin, excepting Arizona, is based on plan number two, for a large reservoir at some place in the canyon section below the Arizona-Utah line, and a division of the river basin into two parts, "Upper Basin" and "Lower Basin."

The physiographic features of the basin suggest this plan, and fortunately there is ample storage capacity at either Lee's Ferry or Boulder Canyon site to completely control the Colorado. This places the storage nearer to the large areas which can be irrigated and affords better control of the water. It also solves the flood problem on the river and, furthermore, it eliminates all possible interference of power developments in the "Upper Basin" with rights in the "Lower Basin."

Green River, after it leaves Wyoming, is chiefly valuable for power purposes and with the elimination of the necessity of building reservoirs on it for flood control, and irrigation needs in the "Lower Basin," its feasible power projects can all be developed without restrictions as there are apparently no large feasible irrigation projects along its course.

Accordingly, the Flaming Gorge reservoir site may prove to be a very valuable power site, upon further detailed investigation. It is sufficiently large to completely equalize the flow of Green River with a dam 220 ft. high, and with a "drawdown" of 50 ft. about 40,000 hp. could be developed, with the present stream flow.

Such a development at Flaming Gorge will add greatly to the power value of all other sites on the river below because of the stream flow regulation afforded by the reservoir.

The physical conditions along the stream suggest that the potential power be developed by a

Upper Disaster Rapid in Ladore Canyon.

series of dams, but not enough detailed investigations have been made to warrant a definite statement at this time as to the best location for these dams.

In the stretch of river from the Flaming Gorge site through Red Canyon and into Brown's Park, a distance of 49 miles, a fall of 470 ft. is available and it is believed that all of this can be developed. With an equalized stream flow of possibly 2,900 sec.-ft. the potential power in this stretch at 70 per cent efficiency is 132,000 hp.

Through Ladore Canyon, a distance of 20 miles, the fall is 270 ft. or 13.15 ft. per mile and with an estimated equalized flow of 3,000 sec.-ft. the potential power in this stretch is 65,000 hp.

At the mouth of Ladore Canyon the Yampa River comes in from the east with an average flow of about 2,500 sec.-ft., and from this point through Whirlpool Canyon, a distance of 8 miles, the fall is 95 ft.

Then after flowing through Island Park the river enters Split Mountain Canyon where its descent is at the rate of nearly 20 ft. per mile, being 145 ft. in the 7.5 miles of canyon.

The potential power then from the mouth of the Yampa River to the Uinta basin where the river leaves Split Mountain Canyon, is 119,000 hp. at 70 per cent efficiency, and with an assumed continuous stream flow of 5,500 sec.-ft., which will also require storage regulation on the Yampa River.

In the Uinta Basin the White River from the east and the Duchesne from the west add considerable water to Green River, so that the equalized flow which would be available for power use through Desolation Canyon by a dam near the head of the canyon, is about 7,000 sec.-ft.

About 240-ft. head could be developed in Desolation Canyon and the potential power at 70 per cent efficiency would be 134,000 hp.

In Gray Canyon another 250-ft. fall is available and could be developed at what is known as the Rattlesnake site. Here it is believed that an equalized stream flow of 7,200 sec.-ft. could be developed, and, accordingly, the potential power in this stretch of canyon is about 138,000 hp. at 70 per cent efficiency.

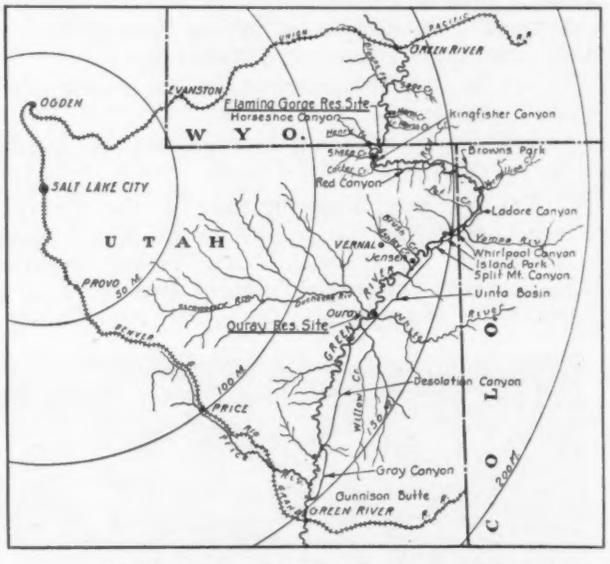
Applications have been made with the Federal Power Commission for permits to study these power sites and determine with some degree of certainty whether or not any of them can be developed economically under present conditions. Action by the commission has been deferred, however, and opposition to the granting of any permits on the Colorado River or its tributaries is evidenced by some of the Colorado River basin states on the ground that no permits should be allowed until the Colorado River compact has been ratified by all the interested states.

The only apparent market for the Green River power at this time is in the Great Salt Lake basin where the normal growth of power demand is now about 7,500 hp. per year.

Green River Lake at head of Green River in Wind River Mts., Wyoming.

At this rate of growth it will be only three or four years until all of the power sites now easily accessible to the market will be completely developed and the logical inference is that the power from Green River must be developed to meet the growing market demands.

Serious consideration is given by the railroads at times to the possibility of electrifying parts of their lines through the mountainous territory. In case this were done in western Wyoming on the Union Pacific line, and in Utah on the Rio Grande line, the Green River power would be reasonably close at hand and could be used to good advantage.



Location of power sites on Green River.

What Can Be Done to Improve Radio Broadcasting?

By J. J. Agutter
J. J. Agutter Company, Seattle

NOTWITHSTANDING the fact that radio broadcasting in the Northwest has degenerated, the writer believes that the potentialities of this wonderful instrument for the general good are so great that it is quite inconceivable that it should be allowed to fall into disuse or become a mere toy for the amusement of children. But the fact that it has degenerated is in itself sufficient evidence that it is in the wrong hands and immediate steps should be taken with a view to correcting this condition. It is in the hope of starting something in this direction that the writer presents what he believes to be a possible solution of the matter.

Broadcasting, as we know it today, is of such recent development that it is not surprising that it is in a chaotic state. It would be strange if it were otherwise, but that is no reason for letting it remain so. What we want now is broadcasting placed upon such a sound and permanent footing that we will be assured of continuous programs of quality.

In the end, the principal beneficiaries of a broadcasting station, assuming of course that interesting and well balanced programs are sent out, are the receivers of the service, that is to say, the listening public. However, it must be assumed that at present the operators of the stations are the most benefited, at least in this part of the country. Why? Because they are all operated for advertising purposes. On account of this fact, the programs offered are very naturally limited as to diversity and quality by the amount of money which these operators feel justified in spending in this particular form of advertising. It is quite reasonable, I think, that the present operators should see a limit to the advertising value of a broadcasting station, just as they see a limit to the value of any other form of advertising. This limit, then, is the thing that fixes the quality of the programs sent out by private operators, and, in this part of the country, it is soon reached.

In the past, same of the newspapers and mercantile establishments of the Coast have put on very interesting programs, but these programs were not entirely due to the enterprise and energy of the management of these institutions. Owing to the novelty of the thing, people and organizations of all sorts were not only willing but anxious to donate their services to these programs, some of them for the advertising they received for their efforts and some of them merely for the pleasure obtained from taking part in a novel form of entertainment.

This attitude toward the broadcasting station, however, is changing and very rapidly. The matter of providing programs is becoming increasingly difficult with all who have the handling of them for private stations. Many of those who formerly were quite willing to donate their services to programs now demand real money for such services. Of course, this feeling applies principally to the professional element, but it is also manifesting itself among the better known amateurs.

Another factor affecting the programs is the attitude of some of the theatrical managers who now insert a clause in their contracts forbidding any of their artists from participation in broadcasted programs, thus tying their hands regardless of their personal inclinations.

If the above statements are true, it is apparent then, that if we are to have satisfactory programs in the future, more money and effort will be necessary to provide them, and the question now is, how much more will the present owners and operators of stations stand for? I am afraid that, not only will they balk at any additional load, but some of the best are likely to curtail even their present expenditures with a consequent falling off in the quality of their programs.

Now, what can be done to improve matters and get the sort of station and programs we desire? To me, there are two possible solutions: one is the establishment of a station by the big manufacturing interests whose chief business is the manufacture of radio apparatus, such as the Radio Corporation of America, and the other is the establishment of a station by one of the departments of the municipality.

With the first we can do nothing. If, for the protection of their business, they eventually find it desirable or expedient to establish stations about the country they will do so. On the other hand, if they see no such necessity, there will be no stations established by them, regardless of any attempted persuasion by outside interests.

With the second possible solution I am much more hopeful. In fact, to me it is the only solution of the local situation, and, the more I consider it, the more practical and reasonable it appears.

Before going into the merits of a municipally owned broadcasting station, however, let me say here that I am not opposed to the establishment of stations by private corporations or semi-public associations, if they can be properly managed; but proper management carries with it the responsibility of adequate financing.

The semi-public association, dependent as it is upon voluntary subscriptions or membership fees, in my judgment lacks the stability necessary for so important an undertaking.

On the other hand, a municipally owned station is assured of continuous operation, and to a very great extent would be free from the vexing program problems that confront the private or semi-public operator.

What are the benefits to be derived by the "listener" from a properly established municipal broadcasting station? To me they are just two; entertainment and education.

Now let us consider who the principal beneficiaries under the municipal plan are. Obviously, they are the citizens "listening in," for the status of the "listeners" has changed. Since the station is no longer operated as a private advertising medium, the citizens receiving the program are the only ones to be considered in the matter and whatever benefits accrue from the operation of the station are theirs.

One or two with whom I have talked have stated that they were afraid a municipally operated station would be used for furthering the ends of some politician. Did you ever hear of the library being used to further the political ends of anybody? Did you ever hear a political speech delivered in any of our parks? It is just as reasonable to suppose that a municipal broadcasting station would be free from the control of the politician as are the schools, libraries and parks. Moreover, any attempt to use it for political purposes would be promptly frowned upon by the citizens and press without discrimination.

I stated above that the "listener" received two things from a properly conducted broadcasting station—entertainment and education. The City of Seattle, like all large cities, maintains two departments whose sole reason for existence is to provide the very things we seek from a broadcasting station, viz., education and entertainment; and the departments furnishing them are the "library" and the "park." What, then, could be more logical or appropriate than the operation of a station under one or the other of these departments, thereby enabling it to further its usefulness by providing the citizens with the very things for which it was created, and at a time of day or year when it would be most beneficial and best appreciated?

Let us consider now why a municipally operated station might be regarded as a better proposition for the city than one operated by a private concern or a semi-public organization. First, the very fact of its being municipally owned would compel an interest in it by the citizens generally that would be largely or entirely lacking in a privately operated station. It becomes at once a civic institution for the general good, and, being assured of continuous operation, everyone within the city would take steps to avail themselves of its service.

Assuming that a municipally owned station is erected, what are the probable chances of its finding suitable material or talent for its programs not enjoyed by a privately owned station?

In the first place, a different attitude is always shown toward publicly owned institutions from that shown to those privately owned, and in a matter of this sort, as with the parks and library, it would no doubt be very marked indeed in favor of the municipally owned. Here is an institution for public entertainment and amusement as well as education. For the present, let us consider the entertainment feature only. In the city of Seattle there are probably dozens of high class singing or choral organizations, several very good fraternal organization bands, amateur theatrical societies, and individual amateur artists by the score, all of whom could put on very creditable numbers. Not all of these, perhaps, would be willing to donate their services, but it is my belief that most of them would do so gladly for a few performances during the year, and on account of the large number of these organizations and individuals available in any large city, they would not be called upon to devote their services very often during a season. Fortunately, the season of the year when radio programs are most desired, is the season when everyone is available through the absence of outdoor attractions, and when musical and similar organizations are most active and willing to respond to popular demand for their services.

No account is taken in this argument of the professional entertainer or artist as these are available at any time the money is forthcoming to pay for their services.

And now for the educational side of the programs. To me, this feature presents such a valuable field for the operating departments of the city government that a broadcasting station under the control of the municipality should make an instant appeal to all department heads. Think of the information that might be broadcasted by these departments that could not reach the people in any other way. Every one of these departments has valuable information or suggestions that the citizens would appreciate receiving, but at the present there is no way of getting it to them except by the printed sheet through the mails, the cost of which makes it out of the question.

If programs of the character indicated were provided, how many people of the city would be without receiving sets? I predict, not many. The audiences that would hear these programs nightly during the winter months would be larger than could be packed into all the public auditoriums in the city. The various operating departments of the city would immediately come into intimate contact with the people with profit to all. The mayor would have an instrument for reaching the public, the value of which can hardly be estimated.

I stated at the beginning of this argument that a municipally owned broadcasting station would no longer be an advertising medium, and so far as furthering the ambitions of any private person or corporation is concerned, that statement still holds. However, being a municipal institution, it would at once become a valuable advertising agency for the city, and the citizens again become the chief beneficiaries as the advertisers.

The sale of radio apparatus is dependent upon the class of program broadcasted. Until a solution for this problem is found, manufacturer, dealer and the purchaser of radio apparatus must suffer alike. Why not let the electrical industry be the first to offer a constructive remedy?

Designing the Power Company Building

BANKS, department stores and insurance companies believe that part of the function of being a good citizen in the community lies in adding to its civic beauty and to its business efficiency by the stability and the modern convenience of the buildings which they occupy. The public utility is in somewhat the same class from the standpoint of the public in that it has a certain standard of dignity to maintain. A further point of resemblance, which is not so often appreciated, is that insofar as its home building is the place where it makes contact with its customers, its problems are somewhat similar to those of the department store and must be met with the same appreciation of psychological reactions to surroundings and treatment.

The new building of the San Joaquin Light & Power Corporation now under process of construction in Fresno, Calif., has been carefully planned with these elements in mind. The building is an imposing one of concrete faced with tile and brick, ten stories in height, topped by a seventy by twenty-foot ornamental electric sign. The location is in the heart of the business and shopping district where the beautiful structure will be an addition to the architecture of the city.

The interior arrangement has been studied from the standpoint of its convenience and efficiency, alike to the employees and the public. Many requests have been received from different parts of the country for copies of the plans to serve as models for power company offices elsewhere—and much interest is being shown in the community itself in the progress of the new building, which is regarded with some civic pride as an addition to the fast growing metropolitan district.

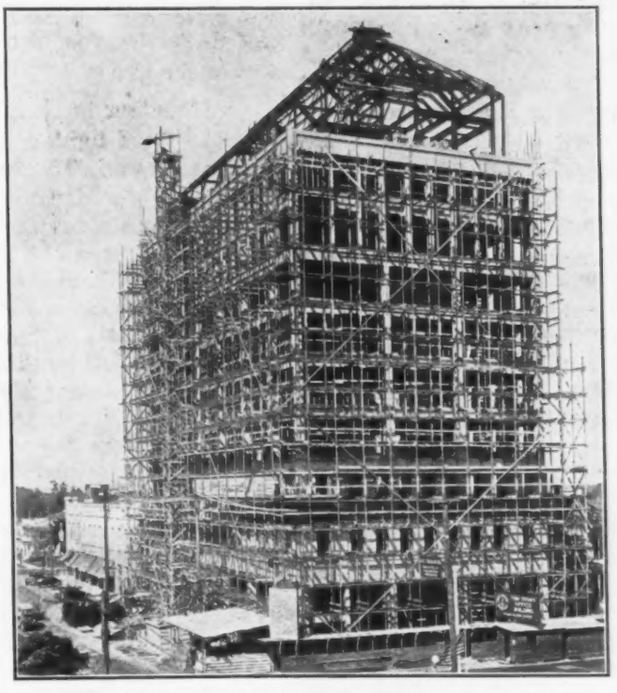
An important section of the ground floor will be occupied by the display and sales rooms of the Valley Electrical Supply Company, the retail merchandising division of the company's sales department. Here also will be the consumers' counter, the service and complaint offices and the stock sales information department.

The consumers' counter will be of marble and subdivided into stalls, similar to a railway ticket office, making it possible for customers to conduct business with the counter clerk without interruption. Contrary to usual practice, the customers' accounting department will not be located on this floor, but occupies a section of the second floor of the building, being connected with the counter where customers are served by a pneumatic tube system. The theory of this arrangement is to make useful every inch of space on the valuable ground floor and devote it to direct contact with the consumer. The accounting department not only takes up a large part of the floor space, but also introduces an element not directly concerned with the immediate service of those who enter. The consumer who finds the clerks busy at the counter is annoyed when he sees a large number of persons within call, all of whom are doing something else, not always obviously busy—in any case, not paying any attention to his needs at all. Everyone who is visible in the San Joaquin building will be at the immediate service of the public.

In the case of a request on the part of the consumer which requires information from the records, the details will be noted on a blank and shot through the pneumatic tube to the department above. Here all messages will be handled at once and the reply with data returned in the shortest possible time. In the meantime the customer is satisfied that his wants are being attended to—and the clerk is free to handle others who may be waiting. For those who have complaints to make or for cases where it is desired to have some measure of privacy, soundproof offices are provided at hand in which to conduct the interview.

Service offices for the district manager and the Fresno City Water Company are located adjacent to the consumers' counter, providing a convenient means of contact between the company and the public for all business relative to electric and water bills, complaints, services and contracts. Rest rooms for employees and for the public are conveniently placed on this floor.

The sales room for the Valley Electrical Supply Company will occupy the remaining space on this floor with show cases and counters for the handling of electrical appliances and supplies. The offices and lighting fixture department will be located on the mezzanine floor which extends across the west side of the building with a floor space of 50 by 175 ft. This arrange-



San Joaquin Light and Power Building now under construction in Fresno.

ment of the fixtures has the advantage of leaving the lower floor clear with nothing to obstruct the overhead view across the tables and cases to the counter in the rear, while at the same time, the fixture department is visible from the entrance and gives the effect of being intrinsically a part of the main sales room, adding a touch of color and life to the rather austere effect of the interior.

A skylight from the light well of the building covers the center of the room which will be finished in light tones, the floor being Tennessee marble with virdi antique border and the walls in imitation Caon stone. Indirect lighting effects from concealed fixtures will provide a soft glow of light in addition to the daylight from the skylight.

The shop of the Valley Electrical Supply Company will occupy the basement space, together with the machinery for the heating and ventilating system of the building, the transformer vault and a large fireproof vault, 55 x 55 ft., for filing and the storage of records for the San Joaquin Light & Power Corporation and subsidiary companies.

A bronze clock, visible from all points in the room, will be placed over the main doorway at the Tuolumne and J Street entrance. The entrance to the elevator lobby will be in glass and decorative cast bronze featuring the San Joaquin Power emblem in relief.

Many Special Features Are Included

The Valley Electrical Supply Company has a section of the window space for its own display. This is to be wired in various ways to provide a complete demonstration of window lighting possibilities. By turning the different switches it will be possible to show exactly the effect of the method under discussion and to quote costs. Ordinarily the lights will be controlled by a flasher system which will hold the interest of the passer by with its continuously changing effects. In case a merchant is especially interested it will be possible to have his window dresser decorate the window with his own goods and then to show him exactly how it would look in his own establishment under different lighting conditions.

The second floor is to be occupied by the Fresno District offices, the chief collector, addressograph department, and mailing department, the latter receiving mail by means of a spiral chute extending from the second to the ninth floors. A pneumatic tube system extends from this floor to the consumers' counter on the first floor. The third floor and part of the fourth floor will be rented until required for future expansion.

The Fresno City Water Corporation engineering department and superintendent's office will be placed on the fourth floor, as will also the accounting department for stock sales.

The fifth floor will be occupied by the Medical Department, the Personnel Division, Research Division, the New Business or Power Sales Department, and Commercial Department. The Medical Department is a complete unit in itself and includes a rest room for employees, reception room, record room, three consultation rooms, examination room for eye, ear, nose and throat, operating and recovery rooms, disrobing room, two surgical dressing rooms, a sterilization room, X-ray, photographing and developing room, hydro-therapy and massage room, plaster cast room and gymnasium. This is regarded as one of the finest medical departments in the West maintained by any private company.

The sixth, seventh and eighth floors will be occupied by the various engineering and general departments of the company. The executive division will occupy the ninth floor, where there will be provided offices for the management and assistants, legal department, publicity department, conference room and office of the system secretary.

The auditorium will occupy the floor space of 40 x 135 ft. on the tenth floor. The library will be placed on one end of the auditorium divided by a folding partition, making it possible to use the library floor space as part of the auditorium if necessary. At the west end of the auditorium a stage 15 x 21 ft. flanked by dressing rooms will provide a means for holding theatricals or other entertainments. A motion picture projecting room is placed over the library. A cafeteria and store room, lobby, check room and rest room, complete the auditorium floor. The auditorium opens through three French doors on the south side to a promenade balcony ten feet wide from which the country can be seen for many miles. Twenty illuminated cauldrons, each five feet high, are arranged along the balustrade of the promenade.

In the attic is the elevator machinery and an individual heating and ventilating unit for the tenth floor, making it possible to cut out the heating and cooling units for the office sections of the building during evening entertainments. In the attic is also the wireless broadcasting studio connecting with the aerials on the roof. A large water storage tank is also in the attic.

Building to Be Flood Lighted at Night

The flood lighting features of the building are in three stages. The first stage is concealed behind the cornice of a Marquis extending around the street sides of the building. The light from this bank of fixtures will flood the building to the eighth floor. From the eighth to the ninth floor a concealed bank of fixtures set in the tile coping will cover the building with a band of light to the balustrade on the tenth floor. The tenth floor will be flood lighted by a third bank of concealed fixtures along the promenade. The huge cauldrons lining the balustrade will emit steam from the exhaust, which will be lighted as it dissipates into the air, lending a very novel effect at night.

Crowning the tile roof will be a high electric sign that will be seen for many miles. Letters fifteen feet high will blazon forth the name "San Joaquin Power" so that all within a radius of many miles may see the monument of confidence and faith in the San Joaquin Valley that has been erected to better serve the 65,000 consumers of the San Joaquin Power system.

Good merchandising methods as exemplified by the sales room of the Alaska Electric Light & Power Company in Juneau, Alaska, are the explanation of the widespread use of electric appliances throughout our most northern territory.

Alaskan Electrical Industry Uses Modern Merchandising Methods

MANY people persist in thinking of Alaska as the land of ice and snow, as a land of privation and hardships. Many think of Alaskan towns as being filled with saloons and drygoods stores selling overals, jumpers and red handkerchiefs. This is very far from the Alaska of today.

In certain parts of Alaska the homes are more modern than the average home in "the States"; women are better dressed, and most Alaskans enjoy conveniences that many of the residents of our larger cities do not enjoy. Juneau is an example of some of the larger towns of Alaska. The homes are well equipped, the stores are up to date so far as such necessary sales helps as good lighting, large and well lighted display windows are concerned, and offer for sale merchandise and clothes such as are found on Fifth Avenue, New York. Electric ranges are as near the point of saturation in Juneau as any city in this country or the world. During the spring, summer and fall, it is very common to heat homes by electricity. Washing machines and vacuum cleaners are likewise extensively used. It is easy to understand the popularity of electrical appliances when we consider the very reasonable rates of the Alaska Electric Light & Power Company for electric service, which are as follows:

Lighting Service—6 cents per kilowatt-hour.
Heating and Cooking—3 cents per kilowatt-hour.
Motor Service—Motors 5 to 25 hp., 3 cents per kilowatt-hour. Motors over 25 hp., special contract.
Special Flat Rate—Electric water heaters, $2.50 per kilowatt-month, based on 12-hour daily use, 6 a.m. to 6 p.m.
Special Electric Heater Service—May 1 to November 1, $2.50 per kilowatt-month.
Minimum Monthly Charge on all classes of electric service—$1 for first 1,000 watts connected load or fraction thereof, and 35 cents for each 1,000 watts in excess of first 1,000 watts connected load.

Alaskan merchandising methods are up-to-date in every sense of the word and many of the central stations and dealers of this section of the country could well afford to learn from their enterprise.

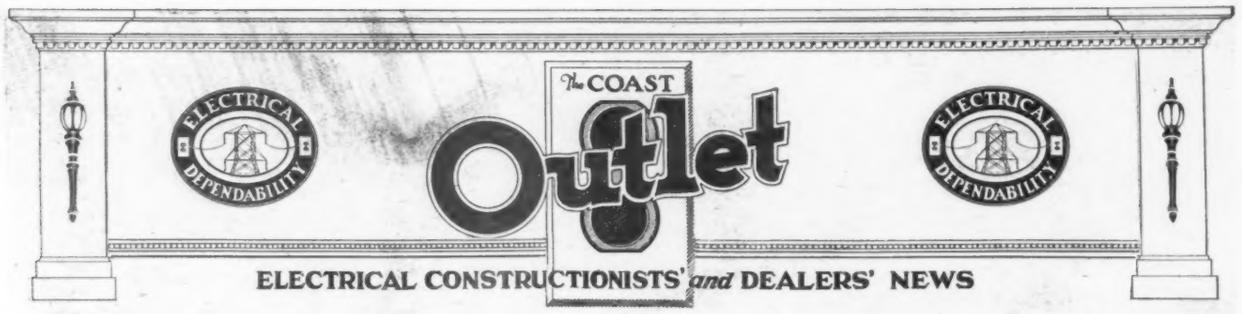
Mechanical Refrigeration Dates from Early Experiments in India

REFRIGERATION as a method of preserving food may be said to date back to the time of the Roman emperors who used the snows of the mountain passes to store the perishable supplies of their armies. At an earlier period the ancients recognized that the drying of foods by sun or heat preserved their lives. From these two methods has gradually been developed the preservation of foods by dry cold.

The earliest inventors turned their attention to the manufacture of ice by artificial means. Ice was made in India at a very early date by the rapid evaporation of water. The first ice machine to manufacture ice was put in operation by Dr. Cullen in 1755, using the principle of the evaporation of water under vacuum. At about the same time, Savoisier operated a machine by using the evaporation of ether. In 1824 Vallance patented a machine operating on the evaporation system as practiced in India.

The first really successful machine was perfected by Perkins of London in 1834 with a volatile gas as the chilling medium. Carre followed with an ammonia absorption system in 1850. From this time on the improvements were rapid, until today we have a multitude of highly perfected machines.

During all the experimenting and perfecting of the method, untold fortunes have been spent in the development of small plants for the home. The first successful machine in this country was the Frostmaker of Chicago which was placed on the market about 15 years ago. Today we have about twenty highly successful machines. Homes with mechanical (which in this case means electrical) refrigeration still number less than 30,000, however. And it is said that there are 2,000,000 washing machines in use and 9,000,000 automobiles.



Electrical Construction

By E. Earl Browne

THE RULES as to the exact method of grounding and the voltage limits requiring grounding are somewhat different in the various electrical codes and ordinances and the contractor will therefore have to apply such minimums as are effective in the municipality or state in which the work is to be done.

Insofar as the electrical contractor's work inside a building is concerned, it is in general the object of all these rules to ground all conducting bodies inclosing or near electrical circuits, such as motor and generator frames, transformer cases, switch cases, cabinets, conduits, switchboard frames, cable armor, piping, in fact any metallic body inclosing or near an electrical circuit which is accessible to persons or is in a place where there are inflammable substances. On account of the great number of cases which would come under this head, they cannot all be discussed in detail, but general principles can be pointed out and detailed discussions given to those which seem most important. The 1920 National Electrical Code being the nearest approach to a universal guide, its provisions in reference to grounding will first be tabulated.

Rules 1c, 8a, and 15 Am require grounding of generator and motor frames when operating at more than 150 volts or if not grounded they shall be insulated from ground.

The current capacity of the ground conductor must not be less than that provided by the following table:

Capacity of nearest cutout protecting the equipment.	Required size of copper ground conductor.
0—100 amp.	No. 10 B. & S. gage
101—200 amp.	No. 6 B. & S. gage
201—500 amp.	No. 4 B. & S. gage
501 and over amp.	No. 2 B. & S. gage

With portable equipment protected by fuses not greater than 10 amp. No. 18 B. & S. gage ground wire may be used.

Rules 8b and 44a require grounding of shields, casing and conduit in connection with a motor operating at a voltage above 600 volts. Where metal sheathed cable is spliced with sheath not installed over splice the ends must be bonded by a No. 6 B. & S. gage copper wire and approved ground clamps.

Rules 11a, 11b, and 45b require that all transformer cases be grounded, except those used exclusively to supply current to switchboard instruments and installed and guarded in all respects as required for the higher voltage circuit connected to them.

Rules 12f, 15 Ai and 15 An require that service conduit be grounded unless it is insulated from ground and if necessary the conduit may be isolated or guarded. The rules provide that the ground shall be not less than No. 8 B. & S. gage copper wire and it must be run directly from the conduit. No portion of the interior conduit shall be used as a part of the ground conductor.

Rules 15a, 15 Ab, 15 Ac and 15 Ak require the grounding of three-wire d.c. distributing systems when exposed to leakage or induction through overhead circuits above 600 volts at one or more supply stations, but not at individual services or within buildings served. The rules do not permit the grounding of two-wire d.c. distributing systems unless they are exposed to leakage or inductions from overhead circuits of higher voltages . The ground conductor must have a current capacity not less than one-fifth that of the grounded conductor at the point where the ground conductor is attached and must not be smaller than a No. 8 B. & S. gage copper wire.

Rules 15b, 15 Ad and 15 Ak require the grounding of all secondary a.c. distribution systems, except furnace circuits and circuits entirely unexposed to leakage or induction, when of 150 volts or less between the grounded point and any other point in the circuit. When the potential exceeds 150 volts grounding is optional. The ground conductor must not be smaller than No. 8 B. & S. gage copper wire, nor smaller than one-fifth of the current carrying capacity of the wire to which it is attached, except it need not be larger than No. 0 B. & S. gage copper wire.

Rule 25C3 requires the grounding of all stationary heating appliances operating on circuits above 150 volts to ground.

Rules 15Ai, 15An, 27c, 28f, 29e and 39i require the grounding of the metal armor of armored cables and interior conduits and metal raceways for surface wiring, and of metal troughs for outline lighting. The rules require the use of No. 10 B. & S. gage copper wire where the largest wire contained is not greater than No. 0 B. & S. gage, and state that the ground wire need not be greater than No. 4 B. & S. gage where the largest wire contained is greater than No. 0 B. & S. gage. If systems are in several separate sections, the sections must be bonded to each other and the system grounded or each section may be separately grounded (See Fig. 1).

Rule 43e requires that motor and crane frames and tracks of electric cranes be grounded.

Rule 43Ae does not require the grounding of conduit or armored cable attached to elevator cars. Motors or motor-generator sets when mounted on metal beams, which form a part of the structural metal frame of the building, are considered as being sufficiently grounded.

Many specifications refer to the "National Electrical Safety Code" for fulfillment of its provisions in so far as they may apply. In general it is a parallel of the (Fire) Code, except in certain cases where the sizes of ground conductors vary from the Underwriters Code, particularly in reference to service conduit grounds, for which the (Safety) Code recommends No. 6 or larger copper wire.

In the State of California the Industrial Accident Commission has rules covering grounding in its "Electrical Utilization Safety Orders" and the interpretation of these rules is as follows:

Service entrance conduit shall be grounded inside the building (order No. 732) with separate ground wire not connected to neutral ground. The ground wire shall be No. 6 B. & S. gage copper wire where wires in the service conduit are not larger than No. 0 and need not be greater than No. 4 for larger wires.

The neutral wire of all three-wire secondaries, except three-phase and d.c. neutrals, shall be grounded ahead of the service switch and inside the building with an insulated copper wire of size indicated by main service cutouts and Table I.

This ground shall always be run as a separate conductor from neutral to ground and be installed the same as required for a current carrying conductor, i.e., unless run in approved conduit it shall be protected by porcelain bushings through walls and partitions and installed as required for knob and tube work. When run in conduit, the conduit shall be grounded, preferably by bonding to the service conduit or the service conduit ground wire (d.c. neutrals shall not be grounded within a building).

All utilization equipment shall be grounded when connected to circuits of over 150 volts to ground. When over 150 volts to ground and less than 300 volts potential all equipment may be grounded to the conduit which carries its feed wires. When over 300 volts potential a separate ground on the frame or case of the equipment is required.

All metal conduit, metal moulding and metal armored cable and cord shall be grounded with copper wire of size in accordance with Table I.

More than one ground wire may be run in the same conduit or one wire of sufficient size to equal the total carrying capacities of the connected ground wires may be used as a bus ground conductor, if grounded at more than one place. The neutral ground and the service conduit ground shall not be run in the same conduit with grounds for building installation or utilization equipment. The neutral ground and service conduit ground may be run in the same conduit, the neutral ground being an insulated wire.

Bare wire (except for neutral ground) may be used. Ground wires must be run in a substantial manner but need not be run as required for a circuit wire.

TABLE I—REQUIRED SIZES FOR GROUND WIRES
(Except Service Entrance Conduit)

Capacity of automatic cutouts in amps.	Size of Copper Wire
0— 60	No. 10 B. & S. gage
61— 100	No. 8 B. & S. gage
101— 200	No. 6 B. & S. gage
201— 600	No. 4 B. & S. gage
601—1000	No. 2 B. & S. gage

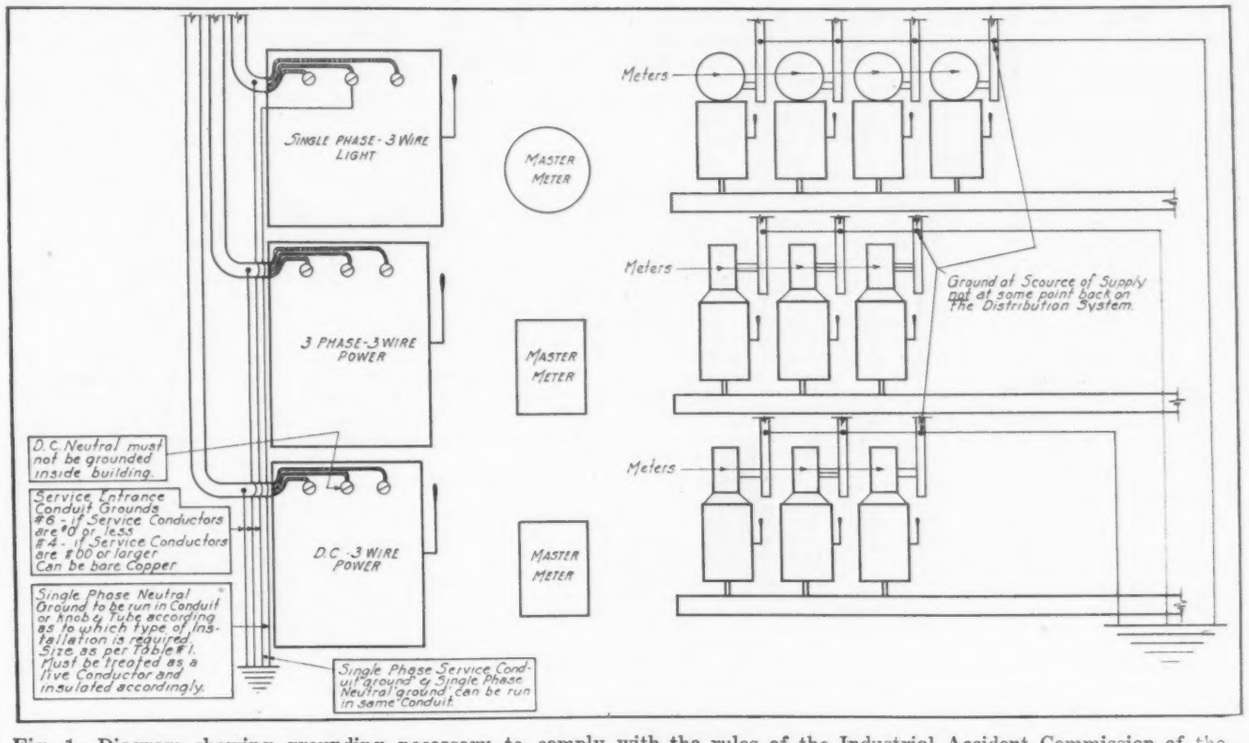
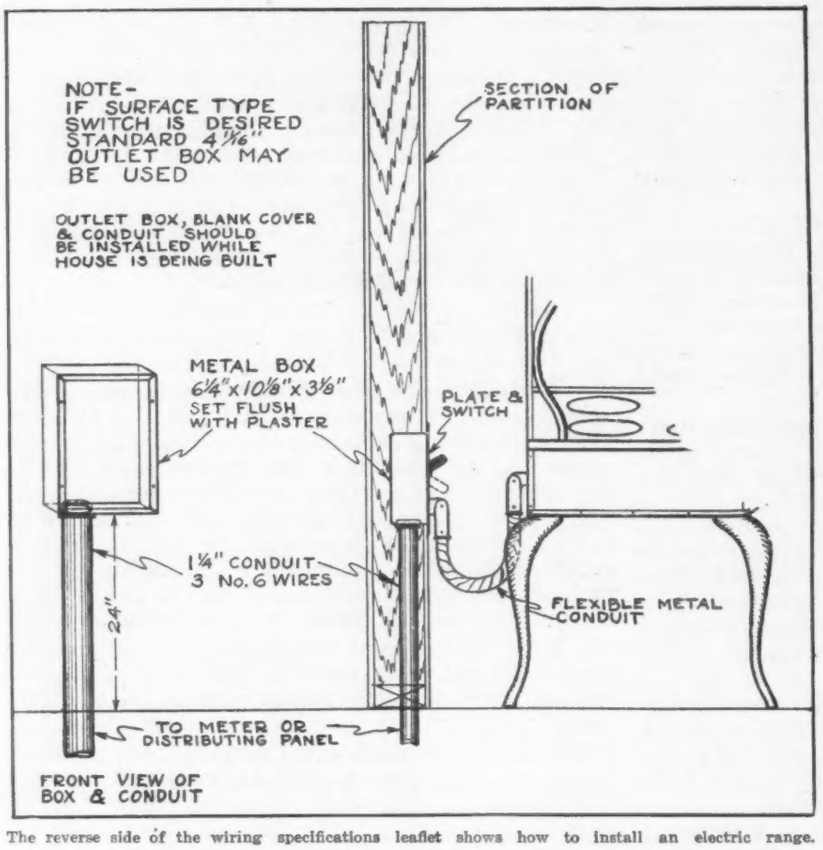

Meters
Meters
Meters
Ground at Scource of Supply not at some point back on The Distribution System.
SINGLE PHASE-3 WIRE LIGHT
MASTER METER
3 PHASE-3 WIRE POWER
MASTER METER
D.C. -3 WIRE POWER
MASTER METER
D.C. Neutral must not be grounded inside building.
Service Entrance Conduit Grounds #6 - if Service Conductors are #0 or less #4 - if Service Conductors are #00 or larger Can be bare Copper
Single Phase Neutral Ground to be run in Conduit or knob & Tube according as to which type of installation is required. Size as per Table #1. Must be treated as a live Conductor and insulated accordingly.
Single Phase Service Cond. w/ "Ground" & Single Phase Neutral "ground" can be run in same Conduit

Fig. 1—Diagram showing grounding necessary to comply with the rules of the Industrial Accident Commission of the State of California.



The reverse side of the wiring specifications leaflet shows how to install an electric range.

Condensed Wiring Specifications Aid Contractors

California Electrical Cooperative Campaign Presents Residence Wiring Specifications in Printed Leaflet

In an effort to secure better electrical construction in new homes in California, the California Electrical Cooperative Campaign has recently prepared a printed list of electrical specifications for residence wiring. The specifications that have been included in the text are the same as those the Campaign has been sending out to electrical contractors, architects, builders, and other interested parties for the past year, but in addition to these, the new leaflet has printed on its reverse side a drawing showing the correct method of wiring an electric range. The mailing list of the Campaign has been used in sending out the new specifications and in this way a greatly diversified list of persons has been reached.

The specifications are particularly of interest to the electrical contractor and the architect in that requirements, to make the home modern, are stated in an exceedingly clear and concise manner. Many architects are taking advantage of the work done by the Campaign field men and are embodying the specifications in their specifications for new homes. By so doing they are sure that correct practice is specified and also that they will secure the cooperation of the electrical contractors who are acquainted with the specifications.

The leaflet is of considerable value to the electrical contractor in that it gives him some definite list of specifications that he can show to prospective customers, without going to the trouble of figuring up a set for the particular job. A few contractors have also found that the specifications, with only minor changes, can be used in rewiring old houses.

The specifications as prepared by the California Electrical Cooperative Campaign are as follows:

General. The object of these specifications is to include all that is necessary for a complete wiring system from the local power company's service to each and every outlet throughout the building, including main service switch, feeders, distributing panels, cutouts, fuses, circuit wiring, convenience outlets, local switches, bells and bell wiring, etc.

All of the above shall be done in accordance with these specifications and plans accompanying them, and in a manner satisfactory to the architect, and all materials shall be of the highest standard quality.

The work shall conform to the rules of the "National Electric Code" and the local ordinance governing electrical installations. All necessary certificates shall be obtained by the electrical contractor at his expense and delivered to the architect before work is accepted.

Main Service Conduit. A 1¼-in. galvanized iron main service conduit with suitable three-wire weather drip fitting shall be installed from the meter location to a convenient point on the outside of the building for the power company to make connection.

Electric Range Conduit. Install a 1¼-in. iron conduit from meter location or power distributing panel to location of range in kitchen and terminate in flush metal outlet box, set 24 in. above kitchen floor; and cover with blank metal cover. (This conduit to accommodate three No. 6 wires when required.) (110-220 volts.)

Outlet Boxes. At each and every switch, wall, ceiling, convenience outlet or other outlet shown on plans, install a metal outlet box of a style most suitable for the purpose of the outlet. All outlet boxes must be rigidly secured in place by approved methods and those intended for fixtures shall be provided with a fixture stud.

Water Heater. From meter or distributing panel to location of hot water boiler, install one pair of No. 10 B. & S. gage wires. Terminate in 3-in. deep outlet box located about one foot above floor. (Arrange for 220 volts.)

Heater Outlets. Each heater outlet (exceeding 660 watts) shall be wired on a separate circuit of not smaller than No. 12 B. & S. gage wire and protected by a separate cutout. Twenty or twenty-five amp. concealed contact flush receptacles shall be installed on circuits intended for portable heaters. (Arrange for 220 volts.)

Convenience Outlets. The branch circuit wiring for all convenience outlets shall be independent of the lighting circuits, and shall consist of No. 12 B. & S. gage wire with not more than eight single or four double outlets on any one circuit, and shall be arranged so that if the consumer desires a separate, or "power rate," meter can be installed on this circuit. All convenience outlets placed on this circuit shall be the "Standard" concealed type together with brass beveled edge cover plates. (110-volt circuits.)

Outlet Heights. Unless otherwise indicated or directed, convenience outlets shall be located in baseboard; wall bracket outlets, 5 ft. 6 in. above finished floor; wall switches, 4 ft. above finished floor, to center of outlet.

Switches. Local wall switches shall be approved flush toggle or tumbler type with brass beveled edge cover plate. The brass cover plate for all convenience outlets and switches shall be finished to match other hardware in same room, or as directed by the architect.

Bells. The electrical contractor shall furnish and install all bells and bell wiring in an approved manner as shown on plans. The current shall be supplied through an approved bell-ringing transformer, which shall be furnished and installed by the electrical contractor.

Public Telephone. Furnish and install, in a manner satisfactory to the Pacific Telephone & Telegraph Company, No. 18 gage triple bridle wire from each outlet shown on plans to basement.

Northern California Firms Join State Association

A survey of the north coast section of California has just been completed by James W. Redpath, secretary of the California State Association of Electrical Contractors and Dealers. The survey was made in connection with the drive for a 2,000 membership for the Association. Mr. Redpath visited all of the cities and smaller communities from Arcata on the north to Healdsburg on the south.

As a result of the visit of the secretary to the northern cities ten firms took out membership in the Association. The firms which in the future will display the "Electrical Dependability" trade mark of the Association are:

Arcata Electric Shop, Arcata;
Eureka Electric Shop, Eureka;
Safety Electric Works, Eureka;
Fred Sundberg, Eureka;
Fortuna Electric Shop, Fortuna;
George L. Edelmann, Fortuna;
Ferndale Electric & Supply Shop, Ferndale;
Chaney & Tucker, Healdsburg;
H. C. Thurston, Ukiah; and
O. C. Williams, Cloverdale.

Two Stockton, Calif., firms and one in Modesto, have recently joined the California State Association of Electrical Contractors and Dealers. The concerns in Stockton that have recently become members are: the Green Electric Company and the firm of C. E. Stanley. E. A. Taggart is the proprietor of the Modesto concern bearing his name that has joined the Association.

The Eureka Electric Shop, Eureka, Calif., is undergoing extensive alterations. A color scheme, which will add materially to the attractiveness of the interior of the store, is to be used.

E. H. Knutz of the Arcata Electric Shop, Arcata, Calif., contemplates a business trip to San Francisco in the near future.

Increasing the Volume of Sales and Net Profits

British Columbia Electrical Contractor-Dealers Given Advice Concerning Increasing of Yearly Business Total

To increase the volume of business is the aim of every contractor-dealer who is anxious to increase his profits. For if the volume of business is increased and the margin of profit is not reduced, the net profit to the owner of any establishment will be larger than under a smaller volume of business.

A pitfall into which many business firms may be drawn, is to increase the volume of sales but at the same time reduce the margin of profit at which these sales are made. As can readily be seen, the result will not be what the firm manager is desiring and despite the fact that larger gross sales are recorded the net profit may be even lower than that made during the preceding year.

In an effort to guide the electrical contractor-dealer members of the Electrical Service League of British Columbia along the correct paths in accounting practice as regards the correct procedure when planning on increasing the volume of sales, a bulletin has been prepared on this subject. Rey E. Chatfield, secretary-manager of the League, who is responsible for the bulletin, has endeavored to show the members how they should go about their work of figuring what their sales should be in the coming year to secure the desired increase in volume of business.

It is the opinion of the writer of the bulletin that sales should be budgeted for the past year and that the results obtained should show the exact volume of business for each month. Then the firm manager should determine what percentage of the total year's sales, each month's sales are. In this way he will find just what per cent of his total yearly sales each month must contribute. When figuring the budget for the coming year, the manager should apply these same percentages to the new total and thus determine how much his sales for each month must be in order to secure the larger sales volume for the year.

The letter, which is headed "Budget Your Business," reads as follows:

"At the recent convention Mr. Davis of the Association of Electragists, International, suggested that every contractor-dealer at the beginning of the year, prepare a budget of operations for the coming year.

"This is certainly a wise policy but the contractor-dealer who prepares such a budget must remember one thing—volume of business obtained below the margin set in the budget leads to financial trouble.

"The methods of preparing a business budget are various but the principle is basic. For example: assume your business for last year was $40,000 in volume, overhead expense $10,000, or 25 per cent, and the net profit amounting to $2,000, or 5 per cent.

"By raising the volume of business to $50,000 you can reduce your overhead percentage to 20 per cent and still make 5 per cent net.

"List your sales for the past year by months. Then prepare your sales budget for a $50,000 gross volume.

"The right hand column is bogey for a $50,000 business, but business to make this volume must carry **a markup of 20 plus 5 or 25 per cent on selling price, which is obtained by marking up net cost by 33 1/3 per cent.**

"When one month falls below the budget volume the contractor-dealer must either increase his markup or go after new business on the basis of markup in the budget.

"Every golf course has a par or bogey for the course—it is a mark to shoot at, in playing a game of golf; likewise every business should work on a budget basis. The contractor-dealer who takes work on a margin less than that on which the budget is based, is like the golfer who makes a "good" score by forgetting to count all his strokes. He is lying to himself and to his friends. The contractor-dealer who takes work below his estimated overhead and profit LIES TO HIMSELF and TO HIS CREDITORS.

"Plan carefully the volume of business you wish to do each month.

"Watch and **budget every item of overhead expense** in advance, and stick to the program you have laid out.

"Above all,

"**Play the Game.**

"REY E. CHATFIELD,
"Secretary-Manager."

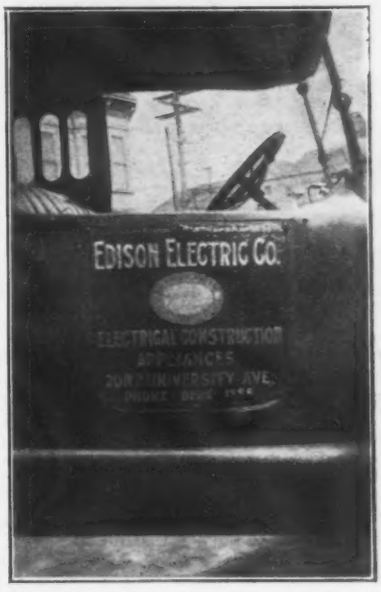
The Commercial Electric Company of Pocatello, Idaho, has recently opened a new sales room at 308 North Main Street in that city. R. Avis, who has been manager of the electric department of the Pocatello Auto Company since last November, has been appointed manager of the Commercial Electric Company and will supervise the purchasing of a line of electrical appliances for the concern.

Sales of Past Year			Budget for New Year		
Jan.	$1,000	2½ %	Jan.	2½ %	$1,250
Feb.	1,200	3 %	Feb.	3 %	1,500
March	1,500	3¾ %	March.	3¾ %	1,875
April	2,000	5 %	April	5 %	2,500
May	3,000	7½ %	May	7½ %	3,750
June	5,000	12½ %	June	12½ %	6,250
July	7,500	18¾ %	July	18¾ %	9,375
Aug.	7,000	17½ %	Aug.	17½ %	8,750
Sept.	4,000	10 %	Sept.	10 %	5,000
Oct.	3,000	7½ %	Oct.	7½ %	3,750
Nov.	2,800	7 %	Nov.	7 %	3,500
Dec.	2,000	5 %	Dec.	5 %	2,500
Total,	$40,000	100 %	Total,	100%	$50,000

Adaptability of Association's Emblem Demonstrated

The adaptability of the "Electrical Dependability" trade mark of the California State Association of Electrical Contractors and Dealers, has recently become more marked. After the adoption of the trade mark, its application was made to letter heads, window stickers and placards to be placed on jobs done by members of the Association.

Recently, however, a wide use of the emblem has been made and as a result the trade mark has been brought to the attention of the public in a more forceful manner. Several pieces of advertising in novel form have been prepared by members and have been distributed to the public. Some time ago Victor Lemoge, a contractor-dealer of San Francisco, and now president of the Association, distributed small whetstones, on the back of which appeared his name and the Association emblem. These attracted a great deal of attention both because of their utility and their attractive form.



One of the cars of the Edison Electric Company showing the panel.

In Berkeley, Calif., a local firm, the Edison Electric Company, has recently purchased leather panels to be attached to the company's cars. These panels carry the name of the company and just below this appears the Association emblem. The panels may be attached to the door of any car and they notify the public that the Edison Electric Company is one of the contractor-dealer firms which can be relied upon for "Electrical Dependability."

R. V. Oyler, manager of the company, was responsible for having the panels prepared for the cars. From all indications the move was a wise one and the people of Berkeley are beginning to recognize that every firm that displays the Association emblem is a reputable one. Undoubtedly the displaying of the sign in every-day business has had a great deal to do with creating this feeling.

JOBBER, DEALER AND SALES AGENT

First Electrical Barbecue Held in Ephrata, Wash.

Central Station Representative Aids Entire Electrical Industry by Electrifying Institution of Long Standing

Electricity has been proved to be such an effective cooking agent in both home and hotel kitchens that it has recently been given an opportunity to show that it is also the best heat source even for the barbecuing of large quantities of meat. It would seem that in the cattle country surrounding Ephrata, Wash., where there is an ample supply of wood, this fuel would be used by nearly everyone and particularly by men in charge of a rodeo who had an old-fashioned barbecue to prepare.

The natural assumption has been proved wrong, however, largely because of the efforts of H. I. Klehm, district agent of the Washington Water Power Company at Ephrata, under whose direction Ephrata has gained the distinction of having the first electrical barbecue that has been recorded. A large roundup, similar to the famous Pendleton Roundup, is held annually in Ephrata by the Ephrata Roundup Association. At this time cowboys from considerable distance come to the town and enter into the various races and contests that are on the roundup program.

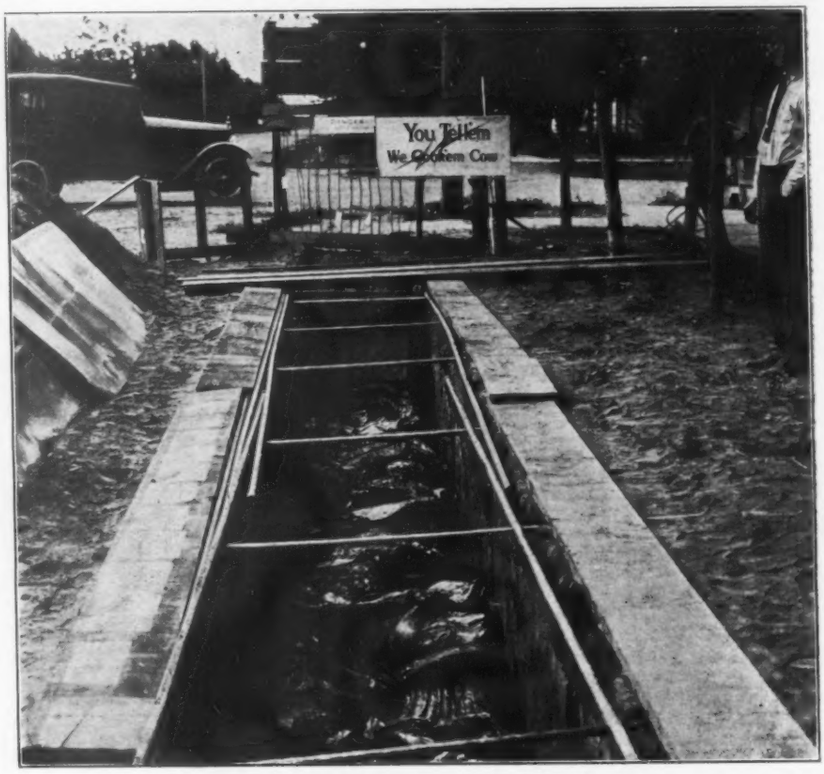
As an advertising idea to show how cooking by electricity is superior to any other means, Mr. Klehm offered to supervise the installation of electric heating elements in the pit that was to be used in cooking the meat. The offer was accepted and the installation was made several days prior to the date of the barbecue. A considerable heating surface was necessary as over a ton of meat was to be cooked for the barbecue.

The oven that was used to cook the meat was an open pit 32 ft. long, 4 ft. wide and 6 ft. deep. Twelve heating elements each of 3-kw. capacity were suspended in this pit. These elements were assembled in three groups of four elements each. About one hundred and eighty feet of No. 14 iron wire was used to make each element. The elements were set about 12 in. above the bottom of the pit. To spread the heat out over the entire pit, deflectors of sheet iron were installed about 12 in. above the heating elements. Bars to hold the meat were placed 18 in. above the deflectors. To keep the heat inside of the pit steel plates were placed over the top. In this way the pit acted in much the same way as an ordinary oven would. Current was carried to the heating elements through three wires, the voltage being 110 and 220 volts. As it was necessary to maintain a constant heat in the pit, a Westinghouse Electric & Manufacturing Company thermostat was connected in the circuit. This feature added considerably to the success of the experiment.

The barbecue was scheduled to be held at noon on July 4 and all preparations had to be made to have the meal ready on time. It was understood that approximately three thousand five hundred people would be at the meal and a suitable quantity of meat was procured to feed that number. The animals were secured from among those gathered together at the roundup and were brought to the pit on July 3. Four steers, weighing approximately two thousand pounds, were dressed and prepared for the barbecue by local butchers.

Heating of the oven started at midnight of July 2. The current was turned on until the oven had reached a temperature of 550 deg. F. and the thermostat kept the oven at that temperature. Twelve hours after the heating had started the meat was placed in the oven and was cooked at 550 deg. for two hours. At two o'clock on July 3 the heat was reduced to 350 deg. and was maintained there for a period of four hours. For the next six hours the meat cooked at a temperature ranging between 250 and 300 deg. Thus at midnight on July 3 the meat had been cooking for 12 hours and the chef in charge of the barbecue ordered the temperature lowered to 200 deg. This temperature was held for the remaining twelve hours until it was time to serve the meat.

Coffee to be served to the visitors was also prepared by electricity. The coffee was first cooked in a caldron and was then kept hot in a range boiler equipped with a 750-watt heater.



The oven in which the meat for the first electrical barbecue was cooked may be seen in the picture reproduced above. The heating elements were placed about two and one-half feet below the meat.

It was estimated that 5,000 people were present at the Ephrata Roundup on July 4 and of this crowd, between three thousand five hundred and four thousand people were fed at the barbecue. The "electric beef" was the main item of the meal and with it were coffee, pickles and bread. Mr. Klehm's skillful operation of the oven was responsible for the roast beef that was cooked with all of the juices preserved.

ELECTRIC IRONER DIRECTORY

Published and Copyrighted by the Journal of Electricity, August 15, 1923

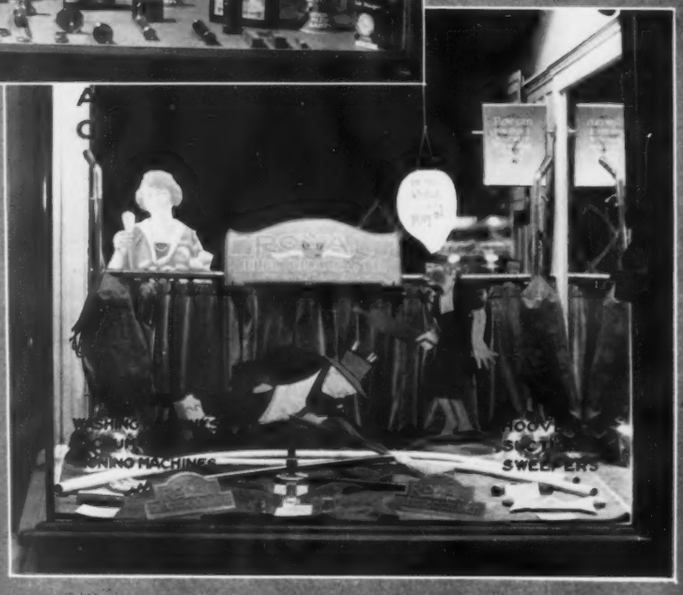
A list of Electric Ironer Manufacturers giving catalog information on the equipment of each, with complete list of Western Distributing Agencies where repair parts may be secured. The publisher does not guarantee this information, but to the best of his knowledge it is correct at the date of publication. When referring to this list in any way, mention the **Journal of Electricity.**

Key to Abbreviations

E—electric heat
G—gas heat
Gn—gasoline heat
Wx—Westinghouse
GE—General Electric
R&M—Robbins & Myers
Dom—Domestic
WE—Western Electric
B—belt drive
G—gear drive
FC—foot control
HC—hand control
A—automatic
VM—various models

Manufacturer	Trade Name	Shipping Weight (lbs.)	Dimensions (floor space)	Length of Rolls (in.)	Heat for Rolls	Wattage for Rolls	Motor: Make	Motor: H. P.	Drive	Control	Speeds	Price: East	Price: West of Rockies	Western Sales Representative	Western Distributors	Nearest Point At Which Repair Parts May Be Obtained.
Altorter Bros. Co. Peoria, Illinois	"A. B. C."	291 355	33x25	26 44	E G E G	1350 2700	Wx Wx	1/6 1/6	B B	FC FC	... ...	$145 $125 $200 $165	$155 $135 $210 $175	**W. E. Peters** 89 E. 12th St., Portland	**A. A. Wilson** 612 S. Spring St., Los Angeles **E. W. Murray Lighting Co.** 313 Riverside Ave., Spokane **Richter Sales Co.** 310 Stewart St., Seattle **The Electric Service Co.** 175 Park St., Portland	Western Distributors
American Ironing Machine Co. 844 W. Adams St., Chicago, Ill.	"Simplex"	VM	VM	26 to 56	E G Gn	VM	.....	.....	B	HC	1 and 2	VM	VM	**H. R. Basford Co.** 180 New Montgomery St., San Francisco	**H. R. Basford Co.** San Francisco **Fobes Supply Co.** Portland, Seattle **Woodill-Huise Elec. Co.** 111 E. 3rd St., Los Angeles	San Francisco
Apex Appliance Co. 3223 W. 30th St., Chicago, Ill.	"Apex"	511 526	26x54	44 48	E G Gn	3200	GE R&M Wx	1/6	G	FC	...	$160	$170	**A.M.SmithCo.,** 219 W. 3rd St., Los Angeles	**A. M. Smith Co.,** 219 W. 3rd St., Los Angeles	Los Angeles
Apex Elecl. Distribg. Co. 1067 E. 152nd St., Cleveland, Ohio	"Rotarex"	325	22x60	46	E G	3000	Own	1/6	B	FC	1		$152.50 (Cash) $167.50 (Time)	**G. A. Buckley** 1405 Walnut St., Kansas City, Mo.	**Apex Elecl. Distrib. Co.** 681 Market St., San Francisco 1437 Welton St., Denver 2011 Broadway, Oakland 1024-11th St., Sacramento 2117 Inyo St., Fresno **Illinois Elec. Co.** Los Angeles **North Coast Elec. Co.** Portland and Seattle **Electrical Equip. Co.** Butte, Montana **Intermountain Elec. Co.** Salt Lake City	Western Distributors
Barnett Foundry & Machine Co. Irvington, N. J.	"Capitol"	470	60x24	46	E G Gn	2700	....	1/6	B	FC	...	$155	$170	.....	.....	Factory
Deming Mfg. Co. 5005 Euclid Ave., Cleveland, Ohio	"Deming"	250	57x24	46	E G	2400	Ohio	1/8	B	HC	...	$160 $117.50	.....	.....	.....	.....
Hollandmaid Co. Holland, Mich.	"Hollandmaid"	280	57x24	48	E G	....	GE	1/6	G	FC	...	$150	$160	.....	.....	Factory
Horton Mfg. Co. Fort Wayne, Ind.	"Horton"	320	22x42	30	E G	2000	GE	1/6	B	FC	...	$140	.....	.....	**A. A. Wilson** Los Angeles **Salt Lake Hdwe Co.** Salt Lake City **Hexter & Co.** Portland **Schwabacher Hdwe Co.** Seattle **Holley-Mason Hdwe Co.** Spokane	Factory
Hurley Machine Co. Chicago, Ill.	"Thor Automatic"	565	54x25	44 or 50	E G Gn	1500	GE or Wx	1/6	G	A	2	$165	$180	**J. W. Ferry** 425 Rialto Bldg., San Francisco	**Pacific States Elec. Co.** SanFrancisco, Oakland, Seattle, Portland, Los Angeles and Spokane	Western Distributors
The "1900" Washer Co. Binghamton, N. Y.	"1900"	450	27x53	44	G E Gn	2500	R&M	1/10	G	FC	...	$160	$175	**W. Lee Holmes** 71 New Montgomery St., San Francisco	**W. Lee Holmes** 71 New Montgomery St., San Francisco	San Francisco
Sperlich & Uhlig Co. Detroit, Mich.	"Ironrite"	410	26x63	46	E G	3500	Dom	1/4	G	FC	...	.....	.....	.....	**Poole Electric Co.** 1206 Fourth Ave., Seattle	.....
Union Cabinet & Mac. Co. Rochester, N. Y.	"Union"	290	56x21	46	G	..	GE	1/8	G	HC	...	$160	.....	.....	.....	Factory
Utensils Co. 303 E. Columbus St., Fort Wayne, Ind.	"Utenco"	310	24x42	24	E G Gn	2750	GE	1/6	G	FC A	...	$175 $155 $165	.....	**Kenneth Wollson** 1405 S. Hill St., Los Angeles	**Listenwalter & Gough** Los Angeles **West Coast Sales Co.** Oakland	Los Angeles or Oakland
Western Electric Co. New York City	"Western Electric"	198	37x24	28	G	...	WE	1/10	G	FC HC	...	$125	$140	**Western Electric Co.** 680 Folsom St., San Francisco	**Western Elec. Co.** San Francisco, Los Angeles, Oakland, Portland, Seattle, Tacoma, Spokane, Denver, and Salt Lake City	All Branch Offices
F. B. Zieg Mfg. Co. Fredericktown, Ohio	"Buckeye"	350	24x48	46	E G Gn	2500	GE	1/6	G	FC	...	$140	$150	.....	**W. E. Dooley & Co.** Seattle, Wash.	Seattle

NOTE—In compiling this series of Directories, the Journal of Electricity has made an effort to secure the desired information from all manufacturers of the types of equipment listed that is sold in the West. The Publisher will be glad to receive omissions, changes, and additions for publication in the big FALL BUYING NUMBER of October 15, 1923.



THREE different types of window displays arranged by Seattle dealers are shown on this page. At the top is a window featuring batteries and lamps in the store of the Burchardt & Hauff Electric Company. In the center the Electric Appliance Company has used two characters from a comic strip in a daily newspaper to good advantage to advertise a vacuum cleaner. Below is a miscellaneous display in the windows of the Lushington Electric Company.

Putting Novelty Into the Dealer's Window Display

"Wireless Control" Exhibit Presented by a Southern California Firm Attracts Attention of Large Crowds

In regard to the ideal window display, probably the only agreement that can be reached among authorities is that the display is designed to increase sales of the store that is responsible for the window. On the other points, such as the character of the display, the design, the appeal that is to be made, and many others, it is probable that no definite rule of thumb will ever be made which will be accepted by everyone as the only correct measure that can be followed in decorating all show windows.

Some decorators will continue to hold the opinion that the decorative and impressive display is the one that will attract the most attention while others will maintain that the ridiculous display, in which the merchandise to be advertised is caricatured, is the kind that will cause the passer-by to stop and view the window. Other decorators feel that the appeal to vanity and pride of ownership is the one that should be used to secure the best results and on the other hand, men equally as successful, will announce that the only appeal to be made is that of utility.

In analyzing a series of successful windows it will nearly always be found that the attempt is made to present a display that is somewhat out of the ordinary. Successful decorators will, in the majority of cases, endeavor to break away from the usual practice that they have followed for a previous period and will at intervals present a display of an entirely different character. Thus the element of novelty will be attached to the window, for the public will have become accustomed to a certain character of designs and any change will no doubt attract more attention than could be obtained with even a much more pretentious display of the usual style. A sudden change in character will often be used just prior to a window of customary nature so as to make the customary window carry the element of novelty.

Some decorators will endeavor to make each separate display one that is novel and of a distinctive type, instead of choosing a set scheme of displays that call for similar treatment over a period of time. In these cases each presentation is designed to speak for itself and to be absolutely independent of any window that has gone before or that is to follow it.

The moving object in the window has been considered one of the most successful "attention-getters" that can be employed in trimming display windows. Any object in action has been found to be much more interesting than the same thing were it in a stationary position. An electric train running around a track inside of a window will attract both children and their parents to the window, when the same train standing on a pedestal in the window would merit only a passing glance.

Action alone does not always produce the novel display that the ambitious window trimmer is anxious to secure. In many cases it is necessary to add another idea to the plan in order to secure the out-of-the-ordinary exhibit. Often a simple idea, but one which calls for the introduction of a surprise, will be the means of drawing crowds to the window and eventually into the store itself. Once the attention is attracted to the display the main purpose has been achieved and if the exhibit is so arranged that the person seeing it is told what the merchandise will do for him or her, the display can rightfully be considered successful.

An excellent example of how large crowds can be attracted to a contractor-dealer's window was presented by the H. L. Miller Company, of Pasadena, Calif. In this display the decorator provided an exhibit which was both a stationary one and one that contained moving objects. When no one was looking at the window the merchandise was not in motion, but when a pedestrian stopped to view the window and pressed the button that was placed in a conspicuous place, all devices started to operate immediately.

The window was said to have "wireless control" and to all appearances no connections were made between the button on the front pane of glass and any electrical circuit. All of the appliances displayed in the window were connected to a single circuit and when the connection was made all of the devices came into motion. In arranging for the display which was to be under the "wireless control," the pliability of a sheet of glass was taken into consideration. The button which was placed in the center of the pane, gave window gazers a definite place to press upon the glass. When this spot was pressed, the entire pane moved in a slight distance and by a system of concealed wires the circuit was closed in a relay circuit which in turn actuated a switch that controlled the main circuit. When pressure was removed from the pane of glass the relay circuit was opened and the switch controlling the main circuit snapped to the "Off" position. Thus the appliances were in operation only when some prospective customer stopped to press the button.

When the circuit was closed the electric vacuum cleaner, washing machine and wringer and the sewing machine all started to move and the element of the air heater turned to a reddish color. All of the lamps displayed lighted and the entire exhibit presented a most interesting moving display. At the base of the washing machine there was a card containing the wording, " 'Push the button' on the window and see the Eden washing and wringing machine run," while a card near the electric bell announced, " 'Push the button' and hear the bell ring. We repair all kinds of electrical appliances."

Five different sizes of Mazda lamps were connected on one block and below each appeared a card stating how many hours each could be operated for 1 cent. The lamps ranged from 10 to 60 watts. A card alongside of this display read, "Take a box of 'em home."

To draw crowds to the display window, the Pasadena contractor-dealer had small arrows painted on the sidewalks for a considerable distance in each direction from the store. These all pointed the way to the "wireless control" window and aided greatly in attracting attention to the exhibit. To carry out the same scheme in the display window, smaller arrows were made upon which appeared the slogan, "Push the Button." These small arrows were pasted on the panes of glass and in every case pointed directly to the button in the center of the front pane. Similar arrows were placed alongside of each piece of electrical merchandise. Two arrows with only the shafts and tails showing, came together immediately below the button, showing that the trail started by the larger arrows on the sidewalk had ended at the button placed above. A large placard with an arrow and the slogan wording in the center appeared just above the button and an oblong card reading "Press Here—Wireless Control" surrounded the space that was occupied by the button.

A great deal of interest in the window was manifested by the people of Pasadena and at most hours of the day and evening there was a good sized crowd present waiting to press the button for themselves.

When anyone pressed the button seen in the center of the large pane of glass all of the appliances were put in motion. The window is one decorated by the H. L. Miller Company at Pasadena, Calif.

Exterior of the new store and office building of the Pacific Power & Light Company at Walla Walla.

Leading the Way to Better Stores and Business

New Home of Pacific Power & Light Company in Walla Walla Is Model Which Local Merchants Can Follow

The primary aim of any establishment is to secure better business for itself, but to do this it is often necessary to bring better business to firms that it serves. The entire electrical industry is so situated that its success depends to a large extent upon the good business of other concerns that it serves. This is particularly true as regards commercial lighting.

To develop a demand for commercial installations it is sometimes necessary to first make the desired installations in the seller's own establishment before other concerns are approached. The central station company or contractor-dealer who can show the prospect that the company desiring to install modern lighting in the prospect's store has a complete and modern installation of lighting equipment, is in a much better position than one which can not do this. The salesman that can show that the firm he represents is a firm believer in what he has to sell, can convince the prospect much easier than he could otherwise.

A modern store that is well lighted is an asset to any firm dealing with the public but is particularly so to the electrical concern. If the electrical firms can lead the local merchants in the movement to make stores more modern, business in the electrical industry and the other industries will prosper.

The Pacific Power & Light Company has recently entered into a campaign to have its district offices the most modern and well lighted in the cities that they serve. In these small cities the company's offices and retail electrical stores are housed in the same building and generally resemble a store more than they do an office. In Walla Walla, Wash., the company has recently entered a new building that was especially designed to suit the needs of the local office. The new store is the most modern in the city and has taken the lead among local concerns in regard to correct lighting installations and general arrangement.

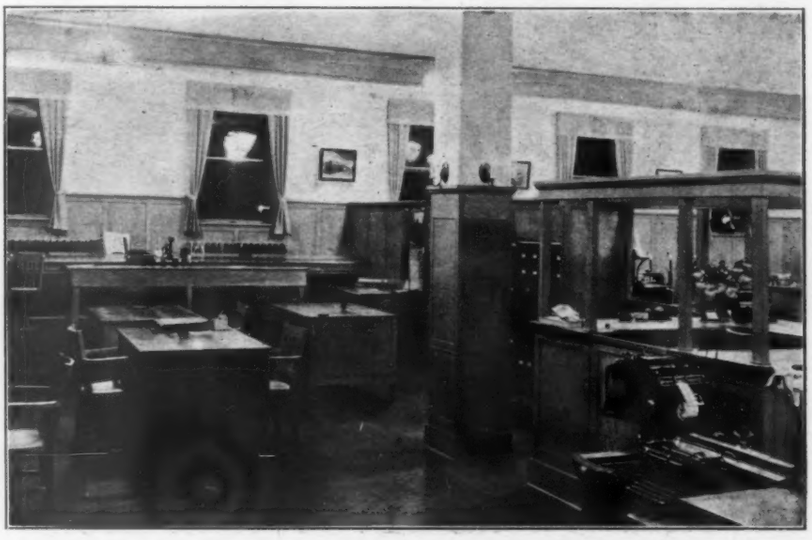
The new home of the Pacific Power & Light Company in Walla Walla is located at Second and Rose Streets and is a two-story structure of buff colored brick. There is a full basement under the building and this together with the first floor is occupied by the company. All of the offices that have to do with the sale of electricity in Walla Walla and the sales room of the company are now housed in the one building. The district manager's office is also located there.

The entrance to the store is flanked by large display windows that are exceptionally well equipped with lighting fixtures. The show windows are lighted with special iris fixtures, equipped with a varied assortment of color caps permitting the use of a large number of colored lighting effects. Hardwood floors appliances to the attention of the public. form the base of the windows and grey panels with blue borders make up the background and side walls. These panels, in addition to breaking the monotony of an otherwise plain back-background, set off the small merchandise that is displayed there by forming frames for these appliances. When the windows are decorated pedestals of different heights are used for each device in order that no tiresome straight line will be presented to the eye of the passer-by. A border of sand-colored material outlined in blue is hung across the top of the show windows. This adds a finishing touch to the exterior of the store.

The entrance to the new location is so arranged that demonstrations of appliances may be conducted there. Any of these appliances which are to be shown in operation may be connected to a convenience outlet located at the base of one of the display windows. In this way it is possible to bring washing machines, ironing machines, electric fans, headlight heaters and other

The appliance sales floor occupies the front part of the building, being given a space 35 x 42 ft. Wall cases and floor display cases are placed on one side of the room in a way that makes for the convenience of the customers and sales people. The appliances that are placed in the glass show cases are presented in a most attractive manner. Sufficient space is provided so that it is not necessary for the decorator to crowd appliances together in any one case. The policy of isolation is carried out whenever possible. Small niches in the side walls permit the display of individual appliances which are of particularly pleasing design. The niches and also the bases of all display cases are lined with blue velvet, thus adding considerably to the attractiveness of the display.

The arrangement of the store is particularly adapted to the needs of the local office of the Pacific Power & Light Company in that it provides both office



The bookkeeper's and cashier's departments are separated from the display floor by a lower partition. The cashier occupies the booth visible at the right and serves customers over a low counter.

and store room. The offices where bills are to be paid and other business is to be transacted are located at the rear of the building and are separated from the remainder of the store by a 6-ft. partition of panelling that matches the woodwork that is used on the walls. Because of this partition, customers coming into the store see only the sales force and do not see a number of people working at the desks in the office department.

On the right, as one enters the store, is a ladies' rest room which is fitted with wicker furniture. A public telephone is provided for the use of customers and adds greatly to the convenience of the place. As Walla Walla is situated in the center of a farming country, this service is greatly appreciated by the farmers' wives who visit the city. The company advertises the fact that this rest room and telephone are maintained for the convenience of anyone. Many of the out-of-town visitors make the store their headquarters and arrange to meet there when ready to return to their homes.

In the center of the appliance sales floor a service desk is situated, at which a young lady is always in attendance to answer questions, receive orders for company service and to hear complaints. To make visitors more comfortable, chairs are provided for them so that they may be seated while transacting their business. The young lady at the service desk also answers all telephone calls and transfers them to the proper departments. In this way it is possible to consolidate the two duties.

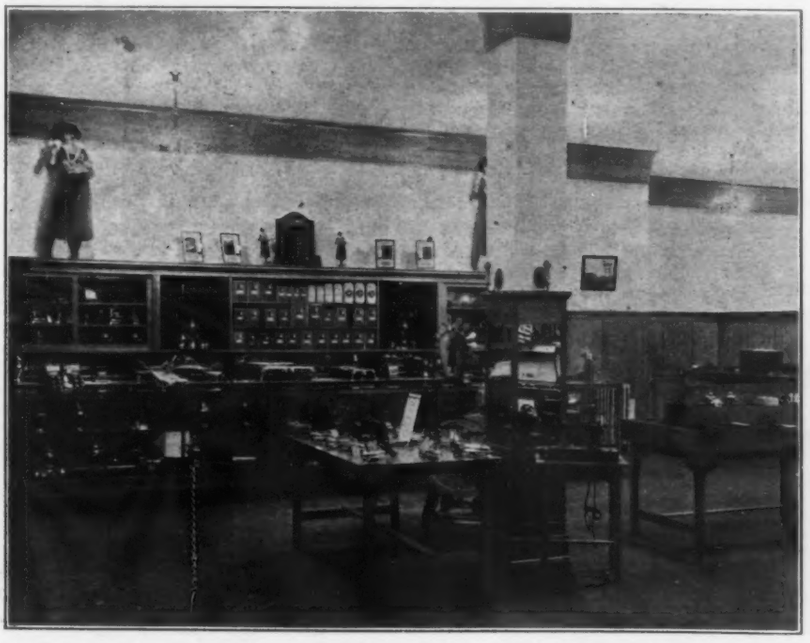
A table which may be used to display articles which the company wishes to feature at any particular time is placed in the center of the sales floor. To the rear of this table is another larger table, the top of which has been divided into bins. In these bins, small devices such as fuses, two and three-way plugs, iron cords, etc., are placed so that patrons may easily see what they are looking for without making the clerk remove the articles from shelves. Small tables are provided for displaying such things as sewing machines. Glass shoes are attached to the legs of all tables in order to preserve the linoleum that is on the floor.

Heavy appliances such as washing machines and ranges are placed along the wall on the side opposite the wall display case. Space is provided so that prospects can see these appliances from all sides and convenience outlets enable salesmen to demonstrate just how the connections may be made in the modern home.

To the rear of the partition are located the cashier's department and the bookkeeper's department. A low counter forms the partition on the left side of the store and customers can converse with the cashier across this. Pens, ink and blotters are supplied to make it easy for patrons to pay their bills. Salesmen's desks are placed behind the bookkeeper's department and are hidden by the partition.

A vault that extends from the basement to the ceiling of the first floor is located in the extreme rear of the building. Alongside of this are a rest room for women employees, the manager's private office and another private office that is used by the traveling auditor.

All of the woodwork within the first floor room is finished in silver grey. A wainscoting 6 ft. 6 in. high extends around the walls and above this is plaster that is tinted a light grey. A deep cornice painted silver grey runs around the top of the walls. The ceiling is plastered and is tinted a light cream color. All of the furniture and fixtures are painted grey to match the woodwork. During the day time excellent natural illumination is secured from windows on the Rose Street side of the building. Sand colored curtains are hung on the five windows and on these curtains appear "P. P. & L. Co." in monogram letters. The letters are made of blue velvet. Between the side windows are enlargements of photographs of some of the major developments of the company.



Display floor of the Walla Walla office of the Pacific Power & Light Company, showing the floor and wall display cases. Note how the two percolator sets are attractively displayed in wall niches.

The color scheme that is used was chosen because of the fact that it would be easy on the eyes of the customers and sales people. Eye strain is entirely eliminated and as a result the employees are not as tired at the end of the day as they might otherwise be and are in much better frame of mind to wait upon customers. Completely enclosed fixtures are used to furnish artificial illumination when that is necessary. Bracket lamps are attached to the posts supporting the floor above. Lighting equipment was specified for the store by the Edison Lamp Works. A large electric sign is to be erected on the front of the building.

The traveling inspector's office, the meter department, the lamp room, boiler room and vault are all located in the basement. The vault is the same size as the one on the first floor and is used for storing old records. A large amount of storage space is provided in the main part of the basement. In the corner of the basement an assembly hall 24 x 24 ft. has been made to provide a space that can be used for holding company gatherings. All of the partitions have been plastered and in the parts that are used as offices, a wood floor has been laid over the concrete. An elevator on the Rose Street side of the building is used to carry supplies to and from the storage room. A wide outside stairway leads down to the basement from the rear and the court thus formed admits light to the two offices in the rear of the building.

Reports from Walla Walla state that the central station company's store and office are the most up-to-date and attractive of any in the city. The show windows have attracted considerable attention and the merchants of the city have been made to feel that the power company is a leader in the merchandising field in Walla Walla. The progressive move made by the company has caused considerable comment and has no doubt raised the company in the estimation of all of the citizens of the Washington city. On the night that the official opening was held approximately fifteen hundred people visited the new store.

Booklets to Aid in Increasing Lighting Installations

Two well designed booklets dealing with lighting campaigns have recently been prepared for the use of the electrical industry by the Society for Electrical Development, Inc. The Society has announced that these booklets are particularly adapted to those branches of the industry engaging in lighting and accessories.

The booklets are entitled, "Building Residence Lighting Business," and "Building Store Lighting Business." The first booklet shows how to survey a home and gives various methods for canvassing communities and securing the contract. The booklet dealing with store lighting business treats all phases of any campaign that might be started, in detail, and suggests methods of procedure for both individual and cooperative campaigns. Suggestions as to the proper forms of advertising, publicity and lectures are included in each piece of literature and should prove helpful to anyone desiring to develop either class of business.

Many labor-saving devices were displayed in the kitchen of the electric home displayed at Ogden.

New Methods Used in Displaying Electric Homes

Utah and California Electrical Men Make New Arrangements with Builders Thus Reducing Costs of Displays

Two rather new and extremely successful methods of displaying electric homes were recently exhibited in two different cities of the West. At Ogden, Utah, the electrical industry cooperated with members of the home furnishing industry and aided in displaying a modern home that was shown as part of the Better Homes Campaign that was being conducted in the city. In Richmond, Calif., a home that was built by the Miner Construction Company for the contractor, was opened to visitors as a model electric home.

In each case the cost to the electrical industry was very low and the results that were obtained were extremely good considering the expense. The financing of each of the two homes was done by the builders and furnishing of the homes was taken care of by local home furnishers.

The Ogden home was built and equipped by local firms and invitations to visit the home were sent out to all of the citizens of Ogden. To further interest in the display, meetings of women's clubs and other organizations were held in the home during the week that the home was open. Reports from the electrical industry in the Utah city indicate that the home was entirely up to the standard of previous exhibits. Due to the fact that the exhibit was presented as part of the Better Homes Campaign, the public viewed the home from a more general direction and did not regard it as wholly an electrical enterprise. The electrical message was presented in a most effective way and visitors were shown that electrification of the home is necessary in order to make it completely modern.

The home was opened on June 4 and remained open to visitors for only one week, as that was the duration of the Better Homes Campaign. There are six rooms in the home and each of these, during the exhibition, was supplied with a complete list of electrical appliances. Guides and demonstrators were present to conduct visitors through the home and explained the function of the various devices that were displayed. The convenience of the electrical appliances was stressed by these men.

One of the features of the home which attracted considerable attention was a full basement in which there are a small dance floor, card room and a large storage space. The laundry room is also located in the basement and is completely electrified.

It was not the intention of the builders of the Richmond home to place it open for inspection, but it was learned that public interest was high in regard to electric homes and the builder consented to allow the people of the city to visit it. Thus the home was not built for the purpose of exhibiting and in addition was constructed at a moderate cost. These features suited the electrical industry admirably as it was able to show that an electrical home did not necessarily have to be an expensive one.

Despite the fact that little publicity was given to the display, it was estimated that over four thousand people visited the home while it was open. Cooperation between a Richmond electrical contractor-dealer and the Western States Gas & Electric Company, the central station company serving the city, secured the small amount of advertising that was run in the local papers.

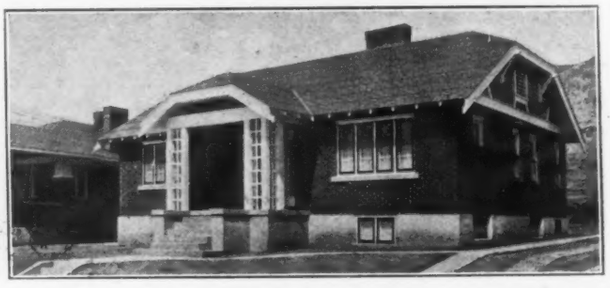
An innovation presented in the Richmond home was the placing of price tags on all of the appliances displayed there. In addition to this, cards stated what it would cost to operate each of the devices. Considerable comment was caused by the comparative cheapness of operating the electrical appliances. It was possible to place price cards on the merchandise that was shown, because of the fact that only one electrical contractor-dealer displayed equipment in the home.

The Richmond home, which is completely electrified, is a six-room structure and all exterior walls are of double concrete construction. This method of insulating the house was found to be particularly satisfactory as the home is heated entirely by electricity. Two hundred and twenty-volt electrical radiators are used to heat the living and dining rooms and radiant heaters, one of which is placed in the fire-place, serve to supplement the radiators. Outlets are located in each of the three bed rooms which permit the occupants of the house to connect the radiators there when they are needed. The method of heating has been found to be entirely satisfactory and, due to the way that the heat is held in the house, should be very economical.

An automatic range, an automatic water heater, and an electric dishwasher were installed in the kitchen of the home while a number of smaller appliances were displayed in the breakfast nook of the house. Particular attention was paid to the lighting of the kitchen.

The home displayed in Ogden and the one opened to the public in Richmond attracted considerable attention in the two cities. It is the opinion of the men who were interested in the display, that the electrical message has been carried to a number of people who might not otherwise have gotten it were it not for the new methods of displaying the two homes. No definite figures on the costs of displaying either home are available, but estimates show that a remarkably low expense was entailed in each case, while results show that the electrical industry did not suffer because of the low cost.

A contractor-dealer, the power company serving the city, and the builder cooperated in displaying this home at Richmond, Calif.



Exterior of the electric home displayed at Ogden, Utah, in connection with the Better Homes Campaign recently conducted in that city.

Make a Good Appearance in the Prospect's Office

Courteous Treatment of the Customer Aids Greatly in Getting His Name Signed on the Merchandise Order

By F. N. COOLEY,
Sales Manager, Western Electric Company, Seattle, Wash.

Much has been said on this very important subject, as it relates to the success in business life, but a few simple rules, if conscientiously followed, will give a corporation representative an enviable handicap in the race for business that will reflect itself in higher volume of sales and mark the man who practices these rules as one who is not a beginner in business life but one who realizes the value of courtesy and patient understanding of the rights of his business associates.

Study over the following suggestions; follow them, and watch results.

Never intrude, or invite yourself into a business man's private office if the door is closed, whether or not you know he is alone. Seek an announcement through an attendant, or, if invited over the telephone immediately previous, do not fail to announce your arrival by knocking on the door, giving your customer an opportunity to invite you in. Remove your hat, and if a hat rack is not available, hold it in your hand or lap. Do not lay it on your prospect's desk. It may be damp or dusty.

Never glance at papers on your customer's desk. Look him in the eye when he is looking at you and out the window if you please, when your glance does not meet his. Keep your feet on the floor, not on his radiator, desk or other office furniture. Do not place a catalog on your customer's desk unless you are sure it has a smooth, soft covering, without exposed metal parts to mar or scratch his furniture. Always look where you are stepping and do not trip over his telephone extension cord, waste basket or cuspidor.

It is a common business practice to give way to a telephone call. Allow your customer, if you are in his office, to answer it promptly. If he is in your office, answer a telephone call promptly, pardoning yourself for the interruption.

In calling on a customer or in making any business call, make sure you do not crowd yourself in before anyone else who may be waiting before you. If you find that inadvertently this has happened and you have gained admittance before another person, you should not only excuse yourself to the offended caller, but the person called upon as well.

Never rush a business conversation, thinking you are doing your customer a favor by saving his time; know what you are going to say before you enter his office; get your story over thoroughly but take your time. If you sense a feeling that the party called upon is too busy to give you sufficient time, excuse yourself and try to secure an appointment at a time when he can give you the deserved attention.

Never start telling questionable stories; let him guide the conversation in such channels if he wants to, but do not encourage such atmosphere long. Do not let the conversation lag; when it does, you are through and your customer is through with you. Always tell the truth. A man cannot lie unless he knows the truth, so don't guess.

Take no visible notice of such placards as "Be Brief," "Do Not Park Here," etc. If you are a well trained business man they are not posted for your benefit.

If the door of your prospect's office was open before you entered, leave it open when retiring; if it was closed, close it upon leaving, and if you inadvertently slam it, re-open it and pardon your carelessness.

I do not consider it good business etiquette to offer a customer or prospect a cigar until you have met him twice or more; nor to lunch or other entertainment until you have met him three or more times. Never offer entertainment in any shape immediately preceding the closing of a business transaction. Wait until after it is closed and then do not let the outcome influence your offering of a cigar or luncheon.

Refrain as far as possible from talking business when entertaining a customer or prospect at luncheon, especially during the meal. Do not let the conversation drag while entertaining a customer at luncheon; make him feel comfortable by guiding the conversation along lines most pleasant to him, not yourself.

Refrain as far as possible from entering a game of chance with a customer. You will lose in the end, even if you win the game. Do not attempt to let your customer win any game when talent is exercised. If you are found out, you go down in his estimation.

Always keep a business appointment. Nothing is more important. If you are unavoidably delayed, patronize the telephone company, if it costs a nickel or a dollar.

Do not be afraid to remove your hat. If in doubt, remove it.

Keep your personal appearance up to or above standard.

Practice the Golden Rule in business.

Making a Check on the Value of the Local Electric Home

Approximately a year ago the Spokane Electrical Service League of Spokane, Wash., was responsible for the displaying of an electric home in that city. People of Spokane, to the number of about nineteen thousand, visited the exhibit and were shown how the modern home is equipped with electrical appliances and outlets for properly lighting and operating the home. A great deal of interest was displayed in the city and it was thought at the time that the exhibit was one that would further the electrical idea in Spokane.

During the past two months, M. E. Collins, a city salesman of the Washington Water Power Company, has been making a canvass of the homes in order to place electric ranges, water heaters and other appliances in as many of these residences as possible. According to Mr. Collins, results from the educational work conducted last summer are evident in a great majority of the homes in Spokane. In one group of eighteen houses, costing five thousand dollars or more apiece and with a total cost of approximately one hundred and eighteen thousand dollars, it was found that one or more of the ideas as to proper electrical installations, presented in the electric home, were incorporated in each of these homes. Mr. Collins has reported that he has noted similar results in less costly homes and is convinced that in Spokane the electric home produced results.

ARE YOU RIDING OR PULLING?

By JOE OSIER

Are you riding in your Association boat or are you pulling a lusty oar? Are you dead weight or live weight? Are you saying "Let's go" or "Go ahead"? Are you sitting pretty or in there working?

These leading questions are put for a purpose because it is my intention, in this column, to fling to the fishes the carcasses of Men of the Electrical Industry who—

Gladly accept the benefits of Association work at the same time refusing to—

Do a tap or pay a cent—therefore—

In case you prefer not to be flung, get busy, grab an oar, pull, pull, pull for the shore where Association members foregather when the race is done—

Where the wavelets lisp lovingly on the shimmering, silvery strands and—

Where every man, after shedding his troubles, is hailed as friend and brother.

I know that I will not be challenged when I say that too many men of the industry, today, are permitting—

"George to do it."

Out of the fold, yet they glean the gravy which is the portion of the lads who are doing the lifting.

They toil not neither do they spin, and Solomon, in all his glory was—

A ragmuffin as compared to one of these—but—

The time has come when these Birds should be stood up and counted, then—

Exited from the nest.

One hundred per cent organizations should be the rule and not the exception. Every man in the game should be on an Association roster with—

His shoulder to the well known wheel and his dues paid in advance and—

He should work and sweat and grunt and do everything in his power to prosper his own particular clan.

When this comes to pass—when every Man of the Trade is in line and in step—

Milk and honey will be the steady diet of all; cash registers will be ringing right merrily throughout the length and breadth of the land and—

The fatted calf, converted into savory veal, will be in evidence in every—

Ham Hamlet and Sinful City in the Universe.

It is true—(may I be spared for saying it)—too many men have been riding in the Association boat rowed by brave and strong and faithful members but—

"The time has come"—again quoting the walrus—

When every man must take an oar and pull until the landscape dims before the eyes and victory perches upon the banners and—

Ratisbon is won.

INDUSTRIAL NEWS

Laguna Bell Substation Placed in Service Aug. 2

The new Laguna Bell 220,000-volt receiving substation of the Southern California Edison Company was placed in active service Aug.2. The station is located a short distance southwest of Los Angeles in the center of the company's industrial load. All equipment is located out of doors on a plot of ground 350 ft. wide and 600 ft. long, with the exception of a 30,000-kva. synchronous condenser and the switchboards for operation of the station. Both of the Big Creek transmission lines, which were placed in operation at 220,000 volts May 6, 1923, have been extended from the original terminus at Eagle Rock substation to Laguna Bell, a distance of 30 miles. Two banks of 220,000/60,000-volt transformers, each having a bank capacity of 60,000 kva., feed into a 60,000-volt bus, from which there are thirteen 60,000-volt outgoing feeders.

The Laguna Bell substation is unique because it is the first substation designed for 220,000-volt operation to be placed in service at that voltage, and because of the unusual type of 220,000-volt bus construction. The bus consists of 4-in. iron pipe mounted on pillar insulator posts set on concrete pedestals with no overhead steel structure. The Laguna Bell station was completed at a cost of approximately a million dollars and will serve as an important distribution point for power from the Big Creek plants for the rapidly growing industrial load in the vicinity of Los Angeles.

Amended Regulations Issued by Federal Power Board

At a recent meeting of the Federal Power Commission that body approved the issuance of amended regulations relating to applications for preliminary permits and for licenses, the purpose of such amendments being to correct defects in the regulations which have been brought to light by experience in administering the Federal Water Power Act. The amendments approved are not a departure in principle from those heretofore in effect, but it is expected they will result in the submission by applicants of more complete information relating to water power developments than has heretofore been the ease, and that in the future less time will be required to consider and act upon applications than has been required in the past.

At the same meeting an order was adopted authorizing the executive secretary, without formal action of the Commission in each case, to approve minor changes in maps, plans, and specifications of licensed projects and to approve or require such substantial alterations or additions to the project works as may be necessary to obtain substantial conformity with the approved plans, and a condensed classification of accounts, for use of licensees who do not furnish a public service, such as industrial concerns, mining and lumber companies, etc., was also approved and ordered promulgated.

Public Ownership Factions Will Attempt Combination

At a meeting of the Public Ownership League of America held in Spokane, Wash., Aug. 3, an attempt was started to combine the several political forces now campaigning for the public development of Washington's hydroelectric resources. Senator Clarence C. Dill was the principal speaker at the meeting.

The plan put forward is to merge the Erickson-Kennedy, Mark Reed-Pliny Allen, Brown Southard and Bone factions. It is planned to form a consolidated public ownership political organization, draft a bill and attempt to introduce it before the Washington legislature early next spring.

The Public Ownership League of Seattle is planning to send J. D. Ross, Seattle superintendent of lighting, and Oliver T. Erickson, public ownership leader of the Seattle city council, to the convention of the Public Ownership League of America to be held in Toronto, Ont. The convention will be held Sept. 10-13.

Washington Water Power Co. to Repair Headgates

The Washington Water Power Company has recently authorized the expenditure of approximately fourteen thousand dollars for the reconstruction and repair of the headgate house of the Monroe Street power house of the company in Spokane, Wash. The Monroe Street plant is the first one built and operated by the Spokane company.

Five steel penstocks lead from the headgate house to the turbines located below the Monroe Street Bridge. The first two penstocks installed were placed in their present position in 1890 when the first plant was built and are 7 ft. in diameter. The other three penstocks of 10-ft. diameter, were installed in 1902.

Each of the five chambers will be repaired separately and in order to do the work it will be necessary to construct a cofferdam in the Spokane River in front of the headgate house. The repair work will be done by a construction force directed by the engineering department of the company.

Construction Forces Active on Soda Point Development

Construction work on the Soda Point, Idaho, development of the Utah Power & Light Company, is progressing rapidly. Crews have been at work on the project for the last five weeks and the work of clearing the river to bed rock is being done at a rapid rate. The project will involve an expenditure of approximately three million dollars.

The dam that is to be erected will be located at the northernmost point on the Bear River, 6 miles west of Soda Springs. The power house will have a generating capacity of nearly twenty thousand horsepower. When this installation is completed, the power company will have five plants utilizing the water power of the Bear River. The large lake to be formed by the dam near Soda Point will be a secondary storage reservoir for the water supply stored in Bear Lake.

The dam that is to be erected will be of the concrete gravity type and will be 80 ft. in height above the river surface. Two vertical 9,400-hp. units will be installed in the power house.

Merced District Will Build Dam on Day Labor Plan

The Merced (Calif.) Irrigation District has announced that it will build its Exchequer Dam on the day labor plan. Several bids for doing the work were received and the directors of the district decided that the work could be done cheaper by the day labor plan.

If the dam is completed before the Pacoima Dam in the mountains near Los Angeles, it will be the highest dam in the world. The dam will be of the constant angle arch type and was designed by Lars Jorgensen, San Francisco engineer. The dam will be 320 ft. high, the arch span at the top being 840 ft. The thickness at the crest will be 12 ft. while it will be 128 ft. thick at the base. Two hundred and eighty thousand acre-feet of water will be stored behind the dam. This volume of water together with the natural flow of the Merced River will supply water to irrigate 250,000 acres of land in Modesto and Stanislaus Counties.

The site of the Exchequer Dam is on the Merced River in Mariposa County, seven miles from the town of Merced Falls. The project is primarily for irrigation purposes, but embraces the construction of a power house with a capacity of 25,000 kw. The district has entered into a 20-year contract to wholesale practically all of the power to the San Joaquin Light & Power Corporation.

Extensive Improvements Will Be Made by Denver Utility

An improvement program calling for an expenditure of over five million dollars is now under way by the Denver Gas & Electric Light Company and other subsidiaries of Henry L. Doherty & Company operating in Colorado. A large portion of this amount covers the initial installation of the new 20,000-kw. generating plant near Valmont, Colo., a project announced several months ago and on which work is actively being done.

It is believed that with the recent incorporation of the Public Service Company of Colorado by Rodney J. Bardwell, one of the directors of the Denver Gas & Electric Light Company, and the associates of his law firm, Roy C. Hecox and Edgar McComb, a new company has been designated to participate in the affairs of the project.

The finished station will include additional equipment to double the primary generating sapacity. With the required transmission system, the total cost is estimated to be close to twelve million dollars. This amount, however, does not include the expenditures which are now being made by the Denver Gas & Electric Light Company for bettering distribution service within the city of Denver.

Already three automatic rural substations have been cut in to accommodate the companies serving the towns of Golden, Arvada, Littleton, Englewood and Ft. Logan, Colo.

Another automatic substation, to be known as the "North Sub" but which will be located at Thirty-ninth and Columbine Streets in east Denver, is expected to be in operation by Jan. 1, according to D. C. McClure, electrical superintendent of the company, under whose direction the various improvements are being made. When completed it will cost about $100,000 and will complete about one-half of the industrial belt distribution system. Later it is understood another substation will be erected to complete the system.

Enlargement of the original Denver power house, now known as the "Barker Sub" and located at Twenty-first and Wewatta Streets, is now being done at a cost in excess of $100,000. The work was necessitated by load growth in the business section of the city.

A similar amount is being spent on new transmission lines within the city. The unprecedented building program in Denver during the past year, especially in outlying residence sections, has necessitated numerous extensions and to serve those districts adequately, the company has been engaged most of the summer in the installation of new poles.

In connection with the Denver transmission system, the plans for bringing in the lines from the new Lakeside plant, are being developed. Steel core aluminum cables mounted on steel towers will be used for transmission lines which will operate at 90,000 volts as far as the Denver terminal substation, where the voltage will be reduced to 22,000 volts for distribution to the other substations. The outdoor terminal substation will be located at the West Denver generating plant which likely will be shut down for all other purposes after the new plant north of the city is in operation.

V. L. Board, the general superintendent, has also an extensive program of improvements for the gas department, due to the increased demand for gas for industrial purposes and house heating. A new holder, the biggest in the outlying residential sections, has just been completed and many new pipe lines will be laid before winter.

Increased business has also necessitated additional office space for the company in its own building to the extent of almost 25 per cent. With the exception of a few offices on the third floor of the building, the company has been using the basement, main floor, and the second floor.

Ogden Automobile Painters Use Electric Japanning Oven

One of the most modern electrical installations in Ogden, Utah, is an electric japanning oven recently installed by the McLaughlin-Storey Company, automobile painters, of Ogden. The oven is used for baking enamel on automobile fenders, hoods, disc wheels and trimmingss.

The oven is 4 ft. by 5 ft. by 7 ft. and a complete set of fenders, hood and trimmings for a large car can be baked at one time. It contains five 3-kw., 750 degree heaters and can be brought up to 400 deg. in one hour. Enamel jobs baked in this oven are guaranteed for a period of three years, which gives one an idea of the lasting quality of the work.

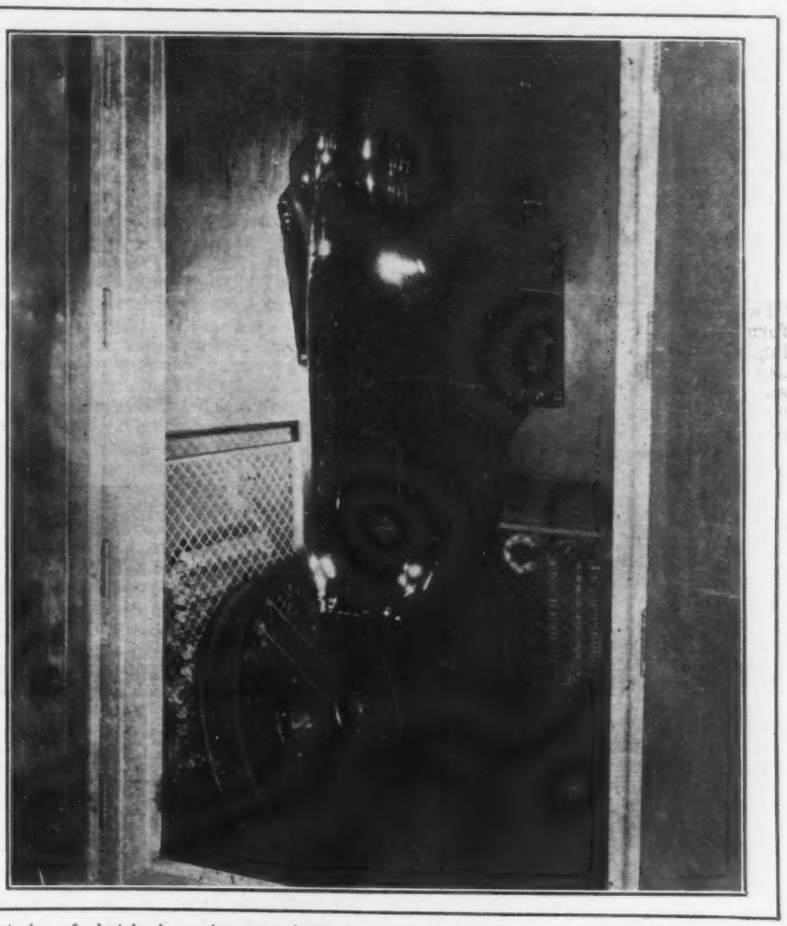
The oven was manufactured locally, of heavy sheet iron lined with 2½ in. asbestos. The connected load of this oven is about 15 kw.

Plan Erection of Hydroelectric Plant at Klamath Falls

As a result of the deeding of the Ankenny and Keno canals to The California Oregon Power Company, by the United States Reclamation Service, the company plans to erect at a site near Klamath Falls, Ore., a power house which will have a capacity of 3,000 kw. It is estimated that the cost of the plant will be approximately five hundred thousand dollars.

When the plant is completed, part of the load at Klamath Falls will be carried by the local plant, but the transmission line to the Copco power house of the company will be maintained to provide absolutely reliable service. Sawmills in the vicinity of Klamath Falls are the principal users of electricity in that territory. There are about thirty of these mills in close proximity to the city and some of these are completely electrified. At the present time all power is transmitted from the Copco power house.

The disposal of the Ankeny and Keno canals leading from Link River, has been considered by the Reclamation Service for some time and during the last four years there has been considerable litigation as to the ownership of the canals and also as to the price that a purchaser must pay to secure them. About a year ago an appraisal committee valued the property at about one hundred and twenty thousand dollars. The California Oregon Power Company's bid for the canals was slightly in excess of this valuation.



Interior of electric japanning oven built for an Ogden, Utah, automobile painting company.

Opposing Resolutions Passed on Municipal Power Sale

H. W. Crozier, of Sanderson & Porter, in reporting for the technical committee of the San Francisco Electrical Development League, at a recent meeting, read a resolution which stated that the League favored the wholesaling of electric power generated as a byproduct by the City of San Francisco at its O'Shaughnessy Dam. The resolution, which is reprinted on another page of this issue, states that it is the opinion of the San Francisco Electrical Development League that it would be to the best interests of the city, if the city would not retail this power but would wholesale it to some central station company at the power house. The resolution which was presented was adopted unanimously by the League and copies were sent to the mayor, all of the city supervisors, the city engineer and other interested parties.

The recommendation made by the League committee is similar to the one made by M. M. O'Shaughnessy, city engineer of San Francisco.

At a meeting of the San Francisco Board of Supervisors on the following day, that body by an unanimous vote went on record as favoring the establishment of a municipally owned and operated power system in the city for the distribution of power generated in connection with the Hetch Hetchy water project. That action was followed by the passing of a resolution calling on the city engineer for data concerning the price and terms upon which the distribution systems of the Pacific Gas & Electric Company and the Great Western Power Company could be acquired by the city.

The information desired from the city engineer is expected to be presented in about a month. It is understood that no further action will be taken by the supervisors until this report has been made.

"Twenty Year Club" Formed by Portland Utility Men

A new organization, known as the "Twenty Year Club," was recently formed by those employees of the Portland Light & Power Company who have served twenty years or more in the employ of the company or its predecessors. Although the role is not complete it now contains nearly 150 names and includes the president, Franklin T. Griffith, F. I. Fuller, vice-president in charge of railways, and O. B. Coldwell, the other vice-president in charge of light and power. C. P. Osborne, superintendent of light and power; Fred Cooper, superintendent of railways and many other ranks.

The purpose of the club, as defined by the recently adopted by-laws, is primarily a social one. Meetings will be held at regular intervals and at least one banquet will be given each year. However, it is expected that the club will do its share toward maintaining company morale and influencing favorable public comment.

The officers of the "Twenty Year Club" are R. H. Townsend, president; Frederick V. Holman, honorary president; Fred Cooper, first vice-president; C. P. Osborne, second vice-president; J. L. Day, secretary and treasurer; T. W. Sullivan, trustee.

Mr. Holman, honorary president, holds his position by virtue of his having been longest in the employ of the company or with its predecessor. Mr. Holman has served continuously since April, 1884, and is still in active service as company counsel. Long before the Willamette Falls Electric Company installed the first hydroelectric unit in Oregon this man was engaged in the electrical business.

The club president has appointed committees to look into the matter of a suitable emblem and pension.

Colorado Men Plan Development of Upper Yampa River

A proposal to erect the largest reservoir in the state of Colorado and a power house with an initial capacity of 12,000 hp. has recently been made public by Donald L. and Walter Carver, proprietors of the Steamboat Service Company. The power house is to be erected on the upper Yampa River, about fifteen miles south of Steamboat Springs and the dam will be located at the upper end of the canyon above Pleasant Valley, according to the announcement.

Plans call for a dam 200 ft. high which will back the water up in the river for a distance of five and one-half miles. The reservoir is to be designed to impound 6,500,000,000 ft. of water. Water will be conveyed to the power house through a tunnel.

A permit for the development has been applied for from the Federal Power Commission and a filing on the site has been made in the office of the Colorado secretary of state. Detailed surveys of the site have been made and the land included in the project has been placed under option. The assurance that the Moffat Tunnel would be bored is said to have considerable bearing upon the decision to develop the power site.

Branch Line in Southern Idaho Granted Federal Permit

A permit for the construction of a branch line of the Oregon Short Line Railway between Rogerson, Idaho, near Twin Falls, and Wells, Nev., has been issued to that railroad by the Interstate Commerce Commission. The branch line when constructed will be 97 miles long.

In applying for the permit, the Oregon Short Line, a part of the Union Pacific System, stated that if the permit were granted it would start construction about Sept. 1 and that the road would be in operation by the end of 1924. The total cost of the work involved is $5,094,000.

The road is to be built primarily to give the territory in southern Idaho a more direct outlet to San Francisco, as direct connection with the Pacific Coast city can be made from Wells. The chambers of commerce of Twin Falls and Wells have been active for some time in an effort to secure the connection of the two cities.

An electrically cooked dinner was served to the members of the Synchronous Club of Los Angeles, Calif., on the evening of Aug. 14. A range furnished by the Westinghouse Electric & Manufacturing Company was used in preparing the meal. Following the dinner an election of officers was held.

Successful Year Forecasted for Denver Organization

With over 90 per cent of its budget for the present fiscal year underwritten in the first thirty days, the Electrical Cooperative League of Denver, Colo., has started on a year that promises to be even more productive than the first two years, according to reports from that city. The program as outlined will include a permanent lighting exhibit, an extensive advertising campaign, at least two electric homes, and a continuation of the field work which was started last November.

The contractor-dealers of Denver recently elected their representatives on the Advisory Board of the organization which with the designations previously made by the other branches of the industry completes the group which will be responsible for the various undertakings.

The membership of the Board for the year ending June 30, 1924, is:

Jobbers

E. V. Beck, Central Electric Supply Company.
J. J. Cooper, Mountain Electric Company.
A. C. Cornell, Western Electric Company.
A. M. Poindexter, Poindexter Supply Company.

Manufacturers

W. E. Barrett, Westinghouse Electric & Manufacturing Company.
R. W. Elliott, Albert Sechrist Manufacturing Company.
H. W. Fishburne, B. K. Sweeney Electric Company.
H. D. Randall, General Electric Company.

Public Utilities

O. L. Mackell, R. G. Gentry, Clarence Keeler, and F. F. McCammon, of the Denver Gas & Electric Light Company.
Dean D. Clark, Mountain States Telephone & Telegraph Company.

Contractor-Dealers

E. C. Headrick, E. A. Scott, C. N. Shannon, and D. D. Sturgeon.

In this group, officers have been elected as follows: O. L. Mackell, chairman; D. D. Sturgeon, vice-chairman; R. W. Elliott, secretary; and Dean D. Clark, treasurer.

The Advisory Board has gone on record as favoring a half holiday for Aug. 16 when the third annual picnic of the League will be held at Elitch's Gardens. E. V. Beck, C. E. Addie, R. W. Elliott, W. E. Barrett, E. A. Scott and E. E. Stettler are the committee in charge of that event.

Cement Company Erecting Dam at Sullivan Lake, Wash.

The Leigh Portland Cement Company is to spend approximately thirty-five thousand dollars in erecting a dam at Sullivan Lake, which is eight miles above the company's plant at Metaline, Wash. The Metaline plant is in the vicinity of Spokane. According to W. G. Perrow, manager of the plant, the dam is being erected for the purpose of securing water power to run the plant at Metaline.

The new dam will be of concrete and will replace an old wooden dam. The company has a force of 85 men working on the dam.

The Dixie Power Company, of St. George, Utah, has extended its lines to the iron mines near Cedar City, and from thence to Iron Springs, a distance of fifteen miles. Electricity will be used to run the drills and other apparatus at the mines, and it will also be used to pump water for the camp at the mines.

Applications for Oregon Sites Cover Nine Projects

Through its attorney, A. A. Smith, of Baker, Ore., the Eastern Oregon Light & Power Company recently filed a request with the state engineer of Oregon for two permits to develop 6,200 hp. from the two forks of the Wallowa River, above Wallowa Lake. The company has its head offices in Baker and serves eastern Oregon in the vicinity of Baker.

H. H. Huson of Huson & Fortiner, engineers of Portland, has made four water power filings. The filings cover projects on waters in Marion and Linn Counties. One of the filings relates to the proposed construction of the Santiam Reservoir for the storage of 1,500 acre-feet of water and another proposes the construction of what would be known as Marion Lake Reservoir to store 7,500 acre-feet.

The Oregon state engineer also received a request from Albert Anderson of Grants Pass, to construct the Anderson Reservoir on the South Fork of the Coquille River. It is the proposal to store 18,500 acre-feet of water and to develop 13,201 hp. F. K. Masters of Portland filed an application for a permit to develop 22,500 hp. by taking 300 sec.-ft. from Fish Lake, Clear Lake, Lava Lake, Lost Lake and McKenzie River.

It is rumored that all of the applications, except that of the Eastern Oregon Light & Power Company, are for speculative purposes.

Los Angeles Council Refuses to Grant Initial Expenses

The Los Angeles Public Service Commission recently was defeated for the fifth time in its efforts to secure blanket authority from the city council to spend $25,000 for the preliminary expenses incidental to acquiring the distribution system of the Los Angeles Gas & Electric Corporation in that city. The electrical properties of the company which the Commission wishes to purchase are valued at $17,000,000.

The city council voted to refer the matter to the council sitting as a Committee of the Whole. The committee meets only upon the call of the president and the date of the next meeting is uncertain.

In commenting upon the application of the Public Service Commission, Councilman Mushet, who has consistently opposed the ordinance, stated that the people of Los Angeles would rather have the $17,000,000 spent on needed improvements to the present system of the city. He stated that the Power Bureau should complete its power development on the aqueduct before taking on any new business.

Engineers of Utah Are Urged to Form United Society

Mobilization of the engineering talent of Utah, both for the development of the resources of the state and the good of the profession, is the object of a program outlined by R. K. Brown, chief engineer of the Salt Lake & Utah Railroad, in a talk at the all engineers' weekly luncheon recently.

Mr. Brown, who is a director of the Engineering Council of Utah, said that after a year's preparation the scheme to form a general active engineering body is now ready to be voted on by the various societies. It is proposed to have a permanent headquarters, a paid secretary, and to publish a technical engineering journal.

With the extension of the mechanical engineers, who are now organizing, more than 800 engineers of Utah are organized into one of the following societies: the Utah Society of Engineers, the American Society of Civil Engineers, the American Institute of Electrical Engineers, the American Association of Engineers, the American Institute of Architects and the American Institute of Mining and Metallurgical Engineers.

Under the present plan the engineering council would co-ordinate the various branches of engineering and promote engineering projects. The engineer at present is merely a hired man, Mr. Brown pointed out. Under the proposed system of organization he would be a professional man working out projects of his own under the auspices of the association. He intimated that one-half of the money necessary to maintain such an organization for one year would be subscribed by an individual engineer of Salt Lake City, and that definite organization awaited only the vote of the individual societies.

Southern Sierras Power Company to Erect New Plant

Plans for starting of work on the erection of a $500,000 hydroelectric generating plant at Mill Creek above Redlands, Calif., have recently been announced by the Southern Sierras Power Company. Power from the new plant will be turned into the main transmission lines of the company and for building the new plant, energy will be taken from other plants now operated by the company. The plant at Mill Creek will be designed to develop 3,000 hp.

Actual construction of the Mill Creek plant can not be started until a line extending from the main transmission line to the power house site is completed. It is reported that work has been started on this connecting line and that it will be ready early next spring.

A three-day excursion to the Spaulding-Drum developments of the Pacific Gas & Electric Company, will be undertaken by the editors of northern California Aug. 24-26. The newspaper men will be the guests of the utility company and will be given an opportunity to investigate all of the company's developments in the vicinity of Lake Spaulding. The trip was originally planned for June 30 to July 2 but the death of John A. Britton, on June 29, caused the postponement of the trip.

The Pacific Gas & Electric Company has announced that it does not wish to dispose of its distribution system in Sacramento, Calif., and hence does not care to place any valuation upon the property. The newly formed Sacramento Municipal Utility District requested the Pacific Gas & Electric Company and the Great Western Power Company to make a valuation of their respective systems with the intention of purchasing both, should the citizens vote the necessary funds at the November election. No reply has yet been made by the Great Western Power Company.

P.C.E.A. Head Names Committee Chairmen for 1923-24

Committee chairmen for the year 1923-24 of the Pacific Coast Electrical Association have been appointed by L. M. Klauber, president of the organization. The members of the committees have not been named yet.

The committee chairmen that have been named are as follows: Public Policy Committee, R. H. Ballard, Southern California Edison Company, Los Angeles; Public Relations Committee, R. E. Fisher, Pacific Gas & Electric Company, San Francisco; Publicity Committee, Al C. Joy, San Joaquin Light & Power Corporation, Fresno; Technical Committee, H. L. Doolittle, Southern California Edison Company, Pasadena; Commercial Committee, A. E. Holloway, San Diego Consolidated Gas & Electric Company, San Diego; Accounting Committee, A. B. Carpenter, San Joaquin Light & Power Corporation, Fresno; Purchasing Committee, C. A. Kelley, Southern Sierras Power Company, Riverside.

Reclamation Service Engineers Studying Utah Rivers

F. E. Weymouth, chief engineer, and James Munn, construction engineer with the United States Reclamation Service, were in Salt Lake City, Utah, the latter part of July conferring with W. M. Green, in charge of investigations for the service in Utah.

Under Mr. Green's general direction there are four parties now at work on investigation of projects which, if found feasible and put through, will affect Utah lands. On the Great Salt Lake Basin project W. L. Drager is at Brigham City investigating the Bear River supply and possibilities of its use, W. M. Blackmer and E. O. Larson are in Cache County, studying the Bear River and its tributaries, particularly the Logan River project, and R. R. Robinson, investigating the Dead Man's bench project in Utah is at Maybell, Colo., investigating the possibility of obtaining Yampa River water for use in the lower White River basin.

An application for a preliminary permit to construct four developments on the North Umpqua River, in Douglas County, Oregon, has been made to the Federal Power Commission by The California Oregon Power Company. The sites of the projects are in the vicinity of the city of Roseburg. It is estimated that about twenty thousand horsepower will be made available if the development is carried out.

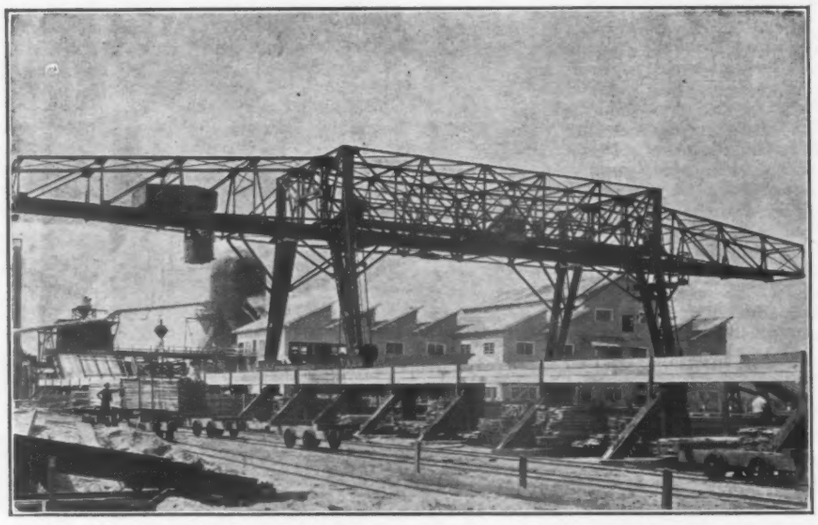
Water from the Hetch Hetchy development of the City of San Francisco can be made available to the city within four years if the necessary funds are provided, according to M. M. O'Shaughnessy, city engineer of San Francisco. Between thirty and thirty-two million dollars will be needed to complete the aqueduct from Moccasin Creek to Irvington, according to Mr. O'Shaughnessy.

Purchasing agents of the leading western cities will hold a convention in San Francisco, Sept. 27-30. General topics relating to the purchasing of supplies and materials in large quanties will be discussed at the convention.

Lumber Company Uses New Style Electric Gantry Crane

The Los Angeles Lumber Products Company is now testing out a considerable amount of electrically operated equipment preparatory to engaging in an extensive program of production at Los Angeles harbor. One of the largest devices installed is a 6-ton gantry crane which is electrically operated.

This crane, operating along a runway through the center of the mill's stacking yard, replaces the method of distribution employed in old type mills. The crane does away with the horse-drawn and man-pushed lumber trucks, where the boards are piled aboard an ungainly truck after coming through the mill and trucked to various parts of the yard, where the lumber is stacked according to dimension.



Six-ton electric gantry crane installed at the mill of the Los Angeles Lumber Products Company.

At the mill of the Los Angeles Lumber Products Company the lumber is carried along a moving platform, after leaving the mill, to various stations, where it is segregated into lengths. This platform operates along the runway over which the crane operates. The crane, with its gantry spread of 52 ft. and an additional cantilever spread at each end of 40 ft., making a total spread of 132 ft., is electrically controlled and operated.

The crane, operated by motors controlled by an operator housed at the top of the crane bridge, moves to the desired pile of lumber which is to be moved. An electrically operated trolley hoisting carriage, with a 6-ton capacity, operating at 60 ft. per sec., picks up the packages. This operation is likewise controlled by the operator. The packages measure about 5 ft. square and from 16 to 20 ft. in length. The crane then moves to the desired destination in the yard and deposits its load, or, if the lumber is to be loaded aboard an auto truck, it moves to that part of the yard where loading is in progress.

The Federal Power Commission has granted a license to the Unity Gold Mines Company for building a diversion dam on Elk Creek, and a power house and transmission line 9½ miles long in Idaho and Valley Counties, Idaho.

Substation Built by Bay Point Light & Power Company

The Bay Point Light & Power Company, operating in Contra Costa County, California, has just completed a new substation in the town of Bay Point. The new substation is one of concrete and houses three 150-kva. transformers and large slate meter panels. The transformers were furnished by the General Electric Company and the Westinghouse Electric & Manufacturing Company supplied the meter panels.

The new equipment was installed because of the increasing demand for power in the towns of Bay Point and Clyde. The Coos Bay Lumber Company recently installed a 250-hp. motor to operate a Cyclone blower system and this installation was the direct reason for purchasing the new equipment.

Distribution Right-of-Way Grant Is Given by Modesto

A permit to use the streets and alleys of the city of Modesto as rights-of-way for the transmission lines of the Modesto Irrigation District was given the District by the city council of Modesto recently. The permit covers a period of twenty-five years and provides that the District can not sell or assign any of its rights, gained under the permit, to any person, firm or corporation.

The City of Modesto is given the right under the permit, to use the poles and the conduits in the system, for the locating, constructing and maintaining of such wires for transmission of electricity as may be necessary or convenient for the city in the discharge of a public function.

A new substation with a capacity of 50,000 hp. has been placed in operation at San Pedro, Calif., by the Los Angeles Bureau of Power and Light. The structure and equipment cost the Bureau $200,000. The new substation will replace four smaller stations in the harbor district, in supplying power to the industrial plants located there. Large lumber and oil refining plants located on the water front are the principal users of the power.

Los Angeles Electric Club Will Visit in San Diego

San Diego, Calif., will be the pleasure goal of the Los Angeles Electric Club, on Saturday, Aug. 25, when that organization makes its annual outing to that city. Cooperating with the Los Angeles club officials will be those of the San Diego Electric Club, who are pledged to help make the day a memorable one for their neighbor confreres.

Leaving Friday afternoon, Aug. 24, the club delegation will embark on the Ruth Alexander at San Pedro for a journey by water to San Diego. Arriving in San Diego the next morning, after a breakfast on board, sight seeing trips, golf, a swim at Coronado tent city, and other sports will be offered the visitors. At 2 o'clock that afternoon, following a picnic in Balboa Park, sports, races, and a baseball game have been arranged. At 6 o'clock a box lunch will be served, according to the published plan, and the party will start home on the Ruth Alexander that evening at 10 p.m.

In charge of the San Diego arrangements for the San Diego Electric Club, as hosts, will be Jess Zweiner, president of the San Diego Electric Club, Walt Wurfel, Carl Heilbron, A. E. "Doc" Holloway, Frank Munro and others.

Power Company Comes to Aid of Logan Municipal Plant

About 200 ft. of the pipe line of the Logan City municipal power plant was washed out on July 18. The water had been shut off in order that some repair work could be done, and when it was turned back into the old pipe line a section of it gave way.

The complete load was transferred to the Utah Power & Light Company's lines without more than five minutes' delay. Work on the new plant will be rushed, without attempting to repair the old pipe line. In the meantime the entire load of the city's lines will be carried by the Utah Power & Light Company, with whom the city has a contract for such service.

The Mountain States Telephone & Telegraph Company has recently purchased six lots in Denver, Colo., upon which it intends to erect a modern office building. At present the offices of the company are located in three different buildings and it is the desire of the company officials to gather all of the departments together in one structure. No definite plans for the erection of the building have been made as yet and it may be some time before any action is taken, according to J. E. MacDonald, secretary-treasurer of the company.

The permanent lighting system to illuminate the streets of the new city of Longview, Wash., being built by the Long-Bell Lumber Company, is under construction and will replace the present temporary crossarm lights. Upright ornamental concrete standards, 13 ft. high, will support 400-cp. lamps in the business section. Plans provide for eight standards to the block in the main business streets, and six or four standards in other districts. All wiring will be underground and much of it has been installed.

Government Engineers Surveying Part of Colorado River

The surveying and mapping of a 300-mile stretch of the Colorado River was started by engineers of the Geological Survey on Aug. 1. The survey will be made over the only section of the river that has not been so surveyed in any detail and includes the dangerous gorges of the Marble and Grand Canyon.s This part of the river's course, which is crowded with bad rapids that swirl between steep rock banks, has been traversed on only six previous occasions. It was first explored in 1869, by Major John W. Powell, later director of the Geological Survey. The present party of engineers and geologists of the Geological Survey will make a trip by boat from Lee's Ferry through the canyons to the mouth of the Virgin River, in Arizona, a distance of about 300 miles, and will make records of the slope of this entire stretch of the river and of the topography.

The Colorado, one of the great rivers of the country, is often called the Nile of America. It drains nearly 250,000 sq. miles, an area equal to that of the Atlantic Coast States from Maine to Georgia. The highest points in its basin are the peaks of the Continental Divide, which stand more than 14,000 ft. above sea level, and a part of its water finds its way into Salton Sea, in southern California, which lies more than 250 ft. below sea level.

Stretches aggregating about 1,200 miles on the Colorado and its principal fork, Green River, and several hundred miles on other tributaries, have already been surveyed and mapped by the Geological Survey, and these stretches, together with the 300-mile stretch to be surveyed this year, extend continuously from the town of Green River, Wyo., on Green River, and from Grand Junction, Colo., on Colorado River, to the Mexican boundary. The results of these surveys are shown on a continuous river map in sheets of convenient size.

Detailed examinations are to be made of possible dam sites, which will be considered both from the engineer's and the geologist's point of view. Four boats of special type have been constructed to stand the rack and strain of the work in the canyons, and each member of the party will be equipped with life preservers. The boats will be manned by skilled boatmen, all of whom have had experience in the rapids of the Colorado. The rapids in this 300-mile stretch form some of the wildest water in the United States. Every precaution has been taken for safety and for the protection of the surveying and photographic apparatus.

Part of the outfit includes a special radio receiving equipment, and arrangements have been made with the "Los Angeles Times" and the "Deseret News" of Salt Lake City to broadcast items of interest to the party, which in turn will send out bulletins by courier at the trail crossings. The radio outfit consists of a standard regenerative receiver with two steps of amplification, modified in the instrument shop of the Geological Survey to meet conditions which may be expected in the canyon. The antenna wire, 150 ft. in length, is carried by the party on a small reel to facilitate winding on moving camp. Considerable static trouble is expected, owing to the frequent thunderstorms in August and September, but the party nevertheless expects to be able to receive most of the messages.

The party consists of ten men. The Geological Survey engineers in the party are: C. H. Birdseye, chief topographic engineer of the Geological Survey, in charge; E. C. La Rue, hydraulic engineer; R. C. Moore, geologist; and R. W. Burchard, topographer.

Electro-Metals Company Project Plans to Be Completed

As the result of a recent decision of the Division of Water Rights of the California Department of Public Works, granting the Electro-Metals company an extension of time to Aug. 1, 1929, to apply to beneficial use 3,000 sec.-ft. of water from the Klamath River, company officials recently announced that the company would proceed with plans for the project. Tentative plans call for the erection of a 250-ft. dam at Ishi Pishi Falls. The company contemplates an extremely large ultimate development.

According to officials of the Electro-Metals Company, the Klamath River is an excellent location for the establishment of electro-metallurgical and chemical industries. The particular advantage of the situation is that low power rates could be secured and in addition low ocean freight rates could be obtained as ocean steamers could supply cheap transportation to adjacent tidewater sites. Because of the transportation facilities raw materials from all over the world could be secured at reasonable prices. The proximity of many of the power sites to deep water transportation makes the Klamath River sites even more valuable than those on other large rivers of the country, according to statements from company officials.

Radio Compass Proves Successful During Working Test

Successful tests of the Kolster radio compass have recently been completed on the Standard Oil Company's tanker, the J. A. Moffett, according to an announcement of the Federal Telegraph Company. The Standard Oil Company of California is reported to have ordered the installation of the radio compasses on its Pacific Coast fleet of twelve tankers.

The Kolster compass, when installed in the wheelhouse or chart room of a vessel, enables the masters of these vessels to work out their bearings regardless of weather conditions. In the past, mariners depended to a large extent upon their visual observations as to the location of the sun, etc., at certain times of the day in order to obtain their bearings.

The marine compass was originally designed as a safety device to be used in foggy weather. Recent developments have shown that it is adaptable for use in obtaining long-range bearings over distances of several hundred miles.

The Pacific Gas & Electric Company has recently announced that it will increase the size of its material storage yard and will add a number of new buildings to its equipment at Davis, Calif. The new facilities will consist of buildings for trucks, motor car storage and repairs, spur track, macadam roads, fences and yard improvements.

Books and Bulletins

A MANUAL OF ARTIFICIAL RESPIRATION

By CAPTAIN G. R. G. FISHER, director of accident prevention and instructor in first aid to industries and civic organizations, in affiliation with the Manufacturers' Association of the Chamber of Commerce, of the City of Omaha, Neb. 80 pages. 5¾ x 6½ in. $0.75. Published by The Stratford Company, Boston, Mass.

Feeling that too many persons are allowed to die because they have been pronounced "beyond hope," the author has prepared this pocket edition dealing with the principles of artificial respiration. It is the author's belief that seven out of every ten lives lost ought to be saved. The book contains a description of the respiratory organs of the body giving the reader an idea of what his efforts are supposed to do for the injured person.

Both the Schaefer and Sylvester methods of artificial respiration are described in detail and complete information is given as to the application of the two methods. The text includes directions for resuscitating a person who has suffered an electric shock. In addition to giving information for reviving persons who have suffered from any of the accidents that require artificial respiration, the book contains excellent information regarding the transportation of persons incapable of walking.

The text is illustrated throughout with pictures showing the execution of principles brought forth by the author. These illustrations are of great value and make it extremely easy for the reader to visualize the process.

The handbook is an excellent compilation of first-aid methods dealing with cases where artificial respiration is necessary to restore the patient to life and should be available to every man in the electrical industry who has occasion to come in contact with persons working on electrical construction work.

"Theater Lighting, Past and Present" is the title of a comprehensive booklet which has just been issued by the Ward Leonard Electric Company, Mt. Vernon, N. Y. The book takes the subject of theater lighting from the birth of the theater and traces it to its modern application in the playhouses of today. The blazing pine knot, the open flame lamp, the candle, the later types of oil lamps and the gas lighting of the last century are all described. The earliest authentic application of electricity to theater lighting was an arc light used in a performance in the Paris Opera in 1846. In 1860 an arc light and prism was used to form a rainbow. In the same year electricity was used to produce the illusion of lightning. The last chapters of the booklet are devoted to Ward Leonard theater lighting equipment and contain some splendid illustrations of some of the larger American equipment. The booklet was produced under the supervision of Ray D. Lillibridge, Inc., New York.

Meetings

A.I.E.E. Convention Delegates to See Big Creek Plants

Arrangements for the Pacific Coast Convention of the American Institute of Electrical Engineers to be held at the Del Monte Hotel, Del Monte, Calif., Oct. 2-5, are receiving considerable attention from the committees in charge. H. W. Crozier, chairman of the publicity committee, has announced that the technical paper situation is being adequately covered by the special committees that have been appointed for that purpose. The papers on high tension transmission lines and radia are expected to be of high professional grade. An entire morning will be devoted to papers and discussion on radio.

In connection with the convention, the Southern California Edison Company, through R. H. Ballard, vice-president and general manager, has extended an invitation to those attending the sessions, to visit the Big Creek developments of the company. It is planned to take the delegates on a two-day inspection trip over the hydraulic development there.

The No. 3 plant will be put in operation some considerable time before the date of the meeting so it will not be possible to make this occasion the official starting of the plant. The company will make it possible for those who wish to go, to see the scope of the work and the tunnel construction at the discharge end of the Florence Lake Tunnel, as well as the operating plants below Huntington Lake. An opportunity will also be afforded to see one end of the 220-kv. transmission line that is operating between the Big Creek plants and Los Angeles.

For this trip the transportation committee is arranging for through Pullmans to leave Del Monte at 6 p.m. Oct. 5, arriving at Fresno at 6 a.m. Oct. 6. From Fresno, the Southern California Edison Company will be hosts to the delegates. The train for Big Creek will leave Fresno at 8 a.m. Oct. 6 and the return to Fresno will be on the night of Oct. 7. Connections to both Los Angeles and San Francisco can be made that night so that the delegates can arrive in either city early the following morning.

Huntington Lake Lodge will be open at the time that the party will make the trip so accommodations will be provided at Cascada. As the space is somewhat limited there the Edison company is desirous of ascertaining the number of delegates that will make the trip.

Lighting Spectacle Planned for Society Convention

Detailed plans for the special features which will mark the 1923 convention of the Illuminating Engineering Society to be held at Lake George, N. Y., Sept. 24-28, are nearing completion. A battery of great searchlights forming a scintillator of moving colored beams, will be the big event of the convention. This scintillator, it is announced, will be located on the wharf in front of the Fort William Hotel, convention headquarters, and will send a multitude of powerful rays into the sky in a fan-like formation. By means of colored slides the beams will be constantly changed in colors, one blending into another to give a rainbow effect.

An elaborate program of fireworks is another feature, a high point of which will be the explosion of the largest bomb used in such displays. A jeweled emblem of the Society, illuminated in various colors by flood lights, is another thing of interest on which the committee is working. This will be placed on the grounds near the hotel.

W. D'A. Ryan, chairman of the general convention committee, under whose direction the lighting effects are being worked out, believes the illumination features of this meeting will compare favorably with the largest spectacles of the kind. The scintillator of colored searchlight beams is patterned after that used during the Panama-Pacific International Exposition.

The officers of the convention committee consist of Mr. Ryan as chairman, Henry W. Peck, vice-chairman, and H. E. Mahan, secretary.

Southern California Edison Company representatives of twelve districts served by the company attended the semi-annual conference of storekeepers, clerks and other officials at Monrovia, Calif., on Aug. 1. One hundred and twenty-five men were present at the meeting. During the conference brief talks on store management, economy of management, cooperation of employees and other business subjects were presented. The meeting was planned by Frederick Schwartz, district manager at Monrovia, and W. J. McCullough, general storekeeper for the company, was the speaker at the opening luncheon meeting of the conference.

COMING EVENTS

Convention of Electric Clubs—
Annual Convention—Association Island, N. Y.
Sept. 16-19, 1923

Rocky Mountain Division — National Electric Light Association—
Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

Colorado Public Service Association—
Annual Convention—Glenwood Springs, Colo.
Sept. 17-19, 1923

American Institute of Electrical Engineers—
Pacific Coast Convention—Del Monte, Calif.
Oct. 2-5, 1923

A meeting of the stockholders of the Southern California Edison Company will be held in the company's building in Los Angeles, Calif., on Sept. 7. At that time the stockholders will vote on the increasing of the capital stock of the company from $100,000,000 to $250,000,000. The proposition of increasing the bonded indebtedness by $250,000,000 is also to be considered by the stockholders. The authorization of these increases will act only as an enabling act as before any of the bonds can be sold, the permission of the California Railroad Commission must be secured. A proposal to execute a new mortgage is also to be presented.

Central Station Men Meet with San Diego Contractors

To provide the first official battleground for the newly formed San Diego County Electrical Contractors' Association, representatives of the San Diego Consolidated Gas & Electric Company were called in to thresh out mooted points in the relations between the contractors and the central station, at a meeting held in the San Diego Hotel, July 27. L. M. Klauber, general superintendent of the company, headed the delegation. The other representatives were: C. L. Lawrie, Paul Hatch, J. E. Hayes and Wm. H. Talbott. When the meeting closed the grievances of both parties had been aired and given careful consideration, and the feeling that much good had been accomplished in the way of promoting better understanding between the two seemed to prevail.

Mr. Klauber, in the course of his introduction, anticipated the discussion by a promise to have definitely established, a policy in regard to underground service in overhead districts where the customer wanted such service and would provide the necessary transformer vaults, etc. This he promised would be worked out carefully in detail, so that no future controversy need result from lack of precedent.

The meter box, and the necessity thereof, especially in cases where there were screened back porches, provided the warmest topic for discussion. Meter service location applications also came in for much explanation. Argument failed to shake the utility representatives from their stand in demand for meter boxes.

Though far from settling all points of contention brought up by the contractors in the gathering, the meeting, as the first genuine attempt of both utility and contractors to meet as representative entities and work out mutual relations together over the table, was held to have been an important event in San Diego electrical contractor development. Other similar meetings are contemplated in the future, it was intimated.

Carl Heilbron, chairman of the contractors' association, called a closed session of the contractors following the general meeting.

Employees of the Denver Gas & Electric Light Company, Denver, Colo., held their annual picnic at Elitch's Gardens Aug. 2. The picnic was held under the auspices of the local chapter of the Doherty Men's Fraternity. All departments, with the exception of those needed in the conduct of the plant and office, were closed for the day. One of the feature contests conducted during the day was the placing of poles and the stringing of high voltage power lines.

A dinner in honor of R. H. Keays, chief engineer of the Moffat Tunnel project, was given in Denver, Colo., by the Engineering Council of Colorado. Oliver H. Shoup, former governor under whose administration plans and arrangements for the construction of the tunnel were made, addressed the gathering on the subject, "The State and the Tunnel." Mayor Stapelton of Denver spoke on "The City and the Tunnel." W. F. R. Mills, former mayor of Denver, was the toastmaster at the dinner.

Manufacturer, Dealer and Jobber Activities

The Okonite Company, Passaic, N. J., has recently published a twelve-page booklet entitled, "Splices and Tapes." The booklet deals with the importance of splices and describes the function of the tape that is to cover the splice. The booklet contains a description of the various styles of friction and adhesive tape manufactured by the company. Directions for making a perfect splice are also presented.

The Brenner-Moxley-Mervis Company has recently been organized by Chicago, Ill., business men to engage in the production of copper rods and drawn copper wire for electrical power transmission work. The company has acquired an eight-acre tract adjacent to both the Illinois Central Railroad and the Santa Fe Railroad. The construction of the first unit of the plant that is to eventually cover the entire site has been started. The plant will use approximately one hundred million lb. of copper annually and will require four thousand horsepower to operate.

The Westinghouse Electric & Manufacturing Company has issued an eight-page booklet, Special Publication No. 1667, containing a list of over three hundred successful installations of Westinghouse industrial heating apparatus. The list, although containing only the more important installations, is impressive because it gives a definite idea of the extent to which electricity is being used for industrial heating purposes. It shows that electricity is not simply the fuel of the future, as is often supposed. A few of the industries making use of electric heat are: manufacturers of abrasives, manufacturers of airplanes, brick plants, bakeries, furniture factories, hospitals, railway companies, restaurants and cafeterias, rubber mills, textile machinery manufacturers, textile mills, tool manufacturers and wire mills.

The Steel City Electric Company, Pittsburgh, Pa., has published Catalog No. 34 which supersedes all previous catalogs of the company. All of the electrical specialties manufactured by the company have been listed in the new edition and each piece of equipment is given a code word. This use of code words will assist jobbers and dealers to order by telegraph.

The Holophane Glass Company, Inc., New York, N. Y., has issued a twelve-page illustrated booklet describing the new Holophane lightmeter. This booklet shows the details of construction of the lightmeter and gives instructions in its use.

The Edison Electric Appliance Company, Inc., Chicago, Ill., has recently placed on the market a small bake oven for use by small delicatessens and restaurants. The device is of the single-deck type with a capacity of twenty 1-lb. loaves of bread. A special top deck may be added to this at small expense, if the owner should desire to make the addition.

American Spiral Pipe Works, Chicago, Ill., has recently issued catalog No. 22 describing Taylor's spiral-riveted pressure pipe. The catalog describes in detail the manufacturing process by which the pipe is made. It also contains many interesting photographs of actual applications of the pipe to hydroelectric development. Copies of the catalog may be had by communicating with the manufacturer.

The Automatic Electric Heater Company, of Warren, Pa., has recently added three new outside storage type heaters to its line of electric water heaters. The new heaters are furnished in 20, 30 and 40-gal. capacities. The new heaters provide for the storing of either a small or a large amount of water in the tank or the whole tank may be heated. The heaters are furnished with 1,500, 2,000, 3,000 and 4,500-watt ratings for use on 110 and 220-volt circuits.

The General Electric Company recently received an order from the Pacific Electric Railway of Los Angeles, Calif., for fifty electric street cars. The cars are to be used in the interurban service of the railway company. The amount of the contract is approximately five hundred thousand dollars.

Wolff Electric Works, of Portland, Ore., has recently moved into its new fireproof building at 407 Everett Street in that city. The concern specializes in the rewinding of motors and generators and in repairing all classes of electrical machinery. A large quantity of special machinery has been installed in the new building and the company is now equipped to handle all sizes of motors or generators needing repairs.

The Fouch Electric Manufacturing Company, of Portland, Ore., has recently announced that it has succeeded the Western Electric Works of the same city. The new concern maintains the same management and ownership and is now situated at 105 North Ninth Street. The company will specialize in the development and manufacture of newly patented electrical devices and machines.

The Gisholt Machine Company, Madison, Wis., has recently prepared a four-page leaflet describing the Precision Balancing Machine that it manufactures. With this machine it is possible to obtain static and dynamic balance by two single corrections individually measured. The device is adaptable to balancing work on crank-shafts, motor and generator rotors, flywheels, spindles and other rotative machine parts.

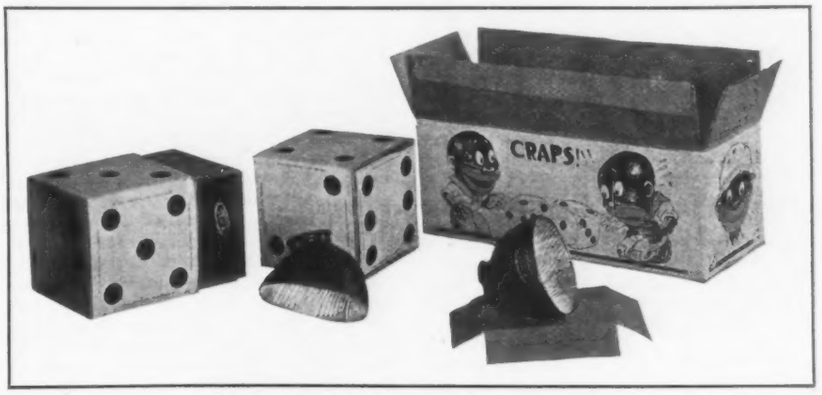
The National Vulcanized Fiber Company, with head offices in Wilmington, Del., has moved its San Francisco sales office to a new three-story building at Fourth and Minna Streets in San Francisco. In the past, offices were maintained at 324 Sharon Building. In addition to the offices which will be located in the new building, the local sales office will have space for stocking a complete line of Peerless insulation and fiber.

The Pure Carbon Company, Wellesville, N. Y., has announced that John Nangle, 164 West Washington Street, Chicago, Ill., has been appointed the company's representative in that city. Mr. Nangle is in a position to give personal engineering service on all brush problems and other related subjects.

The Whitemore Electric Company, 1637 Court Place, Denver, Colo., formerly engaged in the distribution and sale of portable farm power plants, has become an exclusive manufacturers' representative in that territory. Among the accounts which have been taken on and for which wholesale stocks are maintained are: Sweeper-Vac Company, Springfield, Mass.; Hart-Hegeman, Hartford, Conn.; Grinnell Washing Machine Company, Grinnell, Iowa; Moe-Bridges Fixture Company, Milwaukee, Wis.; Domestic Motors Company, Cleveland, Ohio. R. F. Whitmore is the general manager of the company.

The Edison Electric Appliance Company, Inc., has recently placed on the market an electric waffle iron designed for baking single waffles 7 in. in diameter. The new iron is suitable for use by small concerns that cannot afford to own the larger sets of irons and where the demand would not justify the larger installation. Three heat control switches are provided for both the top and bottom irons which are separate units. This enables the operator to turn the current to the low position during hours that the iron is not being used. The electric waffle baker is so built that when the demand for waffles increases additional units can be purchased and banked end to end with the first one.

The Trumbull Electric Manufacturing Company, Plainville, Conn., has recently put on the market a new tumbler switch. The switch is designed for panel board use and is rated at 30 amp., 125 volts. The principal features of the new switch are its strength and compactness.



"COME SEBEN — US READS 'EM 'N WEEPS!"

When we got our set of "Bones" we quit work at the desk for the afternoon and massaged the carpets. Maybe you did the same. If you did we hope the limit was low. (We do not often run pictures of this nature on this page but the one reproduced above pleased us so much that we thought you might be interested.)

Personals

Earl F. Whitney, for thirteen years connected with the General Electric Company in the Northwest, was advanced to the position of manager of the Portland office on July 19, following the reorganization of the office due to the transfer of A. S. Moody, assistant

EARL F. WHITNEY

Northwest manager, to the Los Angeles office as manager. Through his many years of experience with the company Mr. Whitney has familiarized himself with all branches of the work. Mr. Whitney was born on Bleakhouse plantation, Jefferson County, Miss., where he attended the public schools and later a boy's school at Nochez. Having in mind a university education, he prepared himself at Phillips Exeter Academy and entered the Massachusetts Institute of Technology with the class of 1907, graduating from the electrical engineering department. Mr. Whitney's employment with the General Electric Company dates from the fall of 1907 when he entered the Schenectady works as a test man. Two years later found him in the sales training course and in the fall of 1909 he was transferred to the sales force of the San Francisco office of the company. One year later Mr. Whitney came to the Northwest as a salesman working out of the Seattle office and in 1912 was transferred to Portland. Since that time, with the exception of two years during the war, Mr. Whitney has specialized in electrical application in the logging and lumbering industry of Oregon and Washington, and has for the past four years been manager of the lumber industries department of the Northwest. During the war Mr. Whitney served over seas with the 29th Engineers, afterwards the 74th, and saw active service at the front in the work of flash and flame range finding. After the Armistice he was transferred to Paris under Col. D. C. Jackson in the engineering section to determine the amount of damages in the devastated areas. Mr. Whitney has during the past years served the local branches of both the N.E.L.A. and A.I.E.E. in various capacities.

Frank E. Blake, general manager of the Hawaiian Electric Company, Honolulu, is a recent San Francisco visitor.

A. W. Whitney, chairman of the Engineering Standards Committee, New York, is a recent San Francisco visitor. Mr. Whitney was a former professor at the University of California.

A. L. Dabney, head of a reclamation project at Memphis, Tenn., is a recent California visitor.

J. L. Kirkland, of the Indiana Rubber and Insulated Wire Company, Jonesboro, Ind., is a recent Pacific Coast visitor. Mr. Kirkland, whose headquarters are in the Chicago office of the company, is making an extensive investigation of the western market.

Sidney Beatie, general manager of R. Williamson & Company, Chicago, fixture manufacturers, is a recent Pacific Coast visitor. Mr. Beatie is one of the foremost merchandising experts in the country.

O. B. Coldwell, vice-president and general manager of the Portland Railway Light & Power Company, was a recent San Francisco visitor. Mr. Coldwell renewed California associations and incidentally followed up some business in conjunction with the Oak Grove development of the Portland company, which he reports as showing good progress.

James W. Redpath, secretary of the California State Association of Electrical Contractors and Dealers, left San Francisco on Aug. 8, to make a survey of conditions in the San Joaquin Valley and along the coast of central California. While away from San Francisco, Mr. Redpath will spend a few days in Fresno and Bakersfield, and will then return to his headquarters by way of the coast cities.

V. W. Hartley, assistant to the manager of the California Electrical Cooperative Campaign, left San Francisco on Aug. 3, in charge of the traveling window display of that organization. Mr. Hartley will supervise the exhibiting of the window display in 39 California cities while he is on his trip. Merchants of 136 communities will be invited to view the Campaign's exhibit.

Robert Sibley, consulting editor of the Journal of Electricity and executive manager of the California Alumni Association, has taken over the title as well as the duties of convention chairman of the Pacific Coast A.I.E.E. convention to be held in Del Monte in October, Professor Ryan having decided not to accept the title of honorary chairman of the gathering. Plans are progressing for a successful meeting, both in program and entertainment features.

E. O. Shreve, San Francisco manager of the General Electric Company, left for Honolulu on Aug. 8 Mr. Shreve will be away from San Francisco, transacting business in the Hawaiian Islands until about the first of September. On his return he will leave immediately for New York and other eastern cities.

Allen Bole, president of the National Pole Company, of Escamaba, Mich., one of the largest pole distributing concerns in the United States, is a Northwest visitor. Since the first of July he has visited the company's plants at Everett and Spokane and spent considerable time in Seattle.

A. P. Davis, former chief of the Reclamation Service of the United States, is a recent San Francisco visitor.

Herbert A. Cram has been appointed electrical representative of the Western Division of Landers, Frary & Clark, with headquarters in San Francisco, succeeding **W. C. Sears,** who has been transferred to the company's factory at New Britain, Conn., where he will take up wider duties.

Mrs. C. F. Fisher, of the Fisher-Conery Electric Company of Chico, Calif., and recognized as one of the most able merchandising experts in this part of the country, spent several days in San Francisco recently on business connected with her firm.

N. P. Bartley, sales manager of the Chicago Automatic Company, has been a recent visitor to the Pacific Coast. Together with **A. Combs,** western district manager of the company, and **Theodore Hall,** their Pacific Coast agent, he has been analyzing the western business situation, which he finds in a promising condition.

W. S. Berry has recently taken over the title of manager of the San Francisco office of the Western Electric Company. He still performs the duties which come under his former title of sales manager, with the additional responsibilities of his new office. Mr. Berry's early connections with the electrical industry were with the Thompson-Houston Company where he took a student course, being later transferred to their western district, which comprised all the country from the Mississippi to the Pacific. Later he spent some time with the Consolidated Traction Company of Pittsburgh. Since 1904, his work has been with the Western Electric Company and since 1908, with the San Francisco branch of that company. Mr. Berry has been active in the affairs of the local electrical industry, both among the jobbers and in the broader inter-industry activities fostered by the California Electrical Cooperative Campaign and the San Francisco Electrical Development League. He was one of the originators and served as director of the drive carried on by the League to see to it that every member became a power company stockholder—a movement whose importance was recognized and which was followed in many other sections of the country.

W. S. BERRY

Harry Strunk, manager of the experimental department of the Edison Electric Appliance Company of Ontario, Calif., is a recent San Francisco visitor.

E. C. Lackey, vice-president of the Colorado Springs Power Company, Colorado Springs, Colo., attended the meeting of the Advisory Committee of the California Electrical Cooperative Campaign held in Los Angeles, Calif., July 30. Among the other out-of-town men in attendance were: **Don C. Ray,** manager of the public relations department of the Pacific Gas & Electric Company, San Francisco; **George Bigelow,** Southern Sierras Power Company, Riverside; **H. H. Courtright,** manager Valley Electrical Supply Company, Fresno; **Garnett Young,** general manager Garnett Young & Company, San Francisco; **Robert L. Eltringham,** manager California Electrical Cooperative Campaign, San Francisco; **Harry Woodward,** sales manager Great Western Power Company, San Francisco, and **George C. Tenney,** associate editor Journal of Electricity, San Francisco.

C. C. Hillis, prominent jobber of San Francisco, has changed his title from that of vice-president to president and treasurer of the Electric Appliance Company. Mr. Hillis has long been connected with the electrical industry of the Pacific Coast and has been associated with most of the progressive movements in this field. He was one of the early advocates of the California Electrical Cooperative Campaign and now serves as one of the representatives of the electrical wholesalers on the Advisory Council. He has on several occasions served as competent chairman of the Pacific Coast Division of the Electrical Supply Jobbers' Association. Twice he has held the position of president of the National Electrical

C. C. HILLIS

Credit Association and has also served many years on the board of directors of that organization. Mr. Hillis is noted on the golf course as well as in business circles and has at one time or another held most of the cups available on this coast. On more than one occasion he has acted as successful director of sports at the coast conventions. He has been instigator of many movements of inter-industry cooperation and has had a prominent part in their carrying out.

Arthur Elkins, secretary of the San Francisco Electrical Contractors and Dealers' Association, recently returned from a stay at Gilroy Hot Springs, where he has been recuperating from an extended illness.

C. B. Hawley, manager of the Intermountain Electric Company, Salt Lake City, attended the recent convention of the Apex Electrical Distributing Company at Cleveland.

Herbert S. Evans, dean of the college of engineering and former professor of electrical engineering at the University of Colorado, has been elected a member of the board of directors of the Society for the Promotion of Engineering Education. He has just returned from the annual convention of that organization at Cornell University, Ithaca, N. Y., and was successful in having Boulder. Colo., selected as the 1924 meeting place. The convention next year will be held at the University of Colorado starting June 15 and will mark the first meeting of the association to be held in the West.

S. E. Mason, electrical engineer of San Antonio, Texas, has been appointed superintendent of equipment for the San Diego Electric Railway Company, and will have charge of all its street railway equipment, ways and structures, bonding and welding departments. Mr. Mason was superintendent of equipment in a like capacity for the San Antonio Public Service Company. He was born in Texas, in 1889, graduating from the University of Texas in 1911 as an electrical engineer. Before entering the university he was manager of an ice and electric plant. He was employed by the San Antonio Gas & Electric Company after graduation, and made electrolytical surveys of that city for the Bureau of Standards.

W. H. Crawford, manager of the new industries department of The California Oregon Power Company, recently spent some days in San Francisco on the business of his company.

Chas. O'B. Murphy, vice-president and general manager of the Central Indiana Power Company, announces his resignation from all offices in that company and its affiliated organizations in Indiana. His plans for the future are indefinite.

C. E. Blee, until recently assistant engineer with The California Oregon Power Company, has resigned from that position to become chief assistant to E. E. Carpenter, newly appointed consulting engineer to the British Columbia Electric Railway Company, Ltd., of Vancouver. Mr. Blee first entered the employ of The California Oregon Power Company in 1916 on the construction of the Copco dam and has been with that company since that time except for a year in 1919-1920 when he served as assistant professor in the department of civil engineering at Stanford University. His work will bring him in touch with the extensive program of new construction which is being undertaken by the British Columbia company and which will be under Mr. Carpenter's direction.

W. E. Finch, of the San Francisco office of the Apex Electrical Distributing Company, has recently transferred his activities to the Kansas City branch of that company.

George P. Baldwin, general manager of the merchandising department of the General Electric Company, formerly of San Francisco, and now with offices in Schenectady, arrived in San Francisco on Aug. 6. Mr. Baldwin is making a circuit of the divisional headquarters of his company.

E. R. Hannibal, superintendent of the Interstate Utilities Company, Spokane, whose election as chairman of the Spokane Section, A.I.E.E., was recently announced, graduated from the University of Utah in 1911, with the degree of B.S. in mechanical engineering. Having worked his way through school, Mr. Hannibal spent the following fourteen months in acquiring a homestead in Nevada, this venture being considered in the nature of a well-earned vacation. Upon proving up, Mr. Hannibal entered the service of the Rocky Mountain Bell

E. R. HANNIBAL

Telephone Company as an assistant in the engineering department and later became assistant construction engineer for their successor, the Mountain States Telephone & Telegraph Company, holding that position until the entry of the United States into the war. At that time, he helped organize a Telegraph Battalion and was commissioned a first lieutenant in the Signal Corps, 40?th Telegraph Battalion. After the St. Mihiel drive in 1918, Mr. Hannibal received a citation from General Pershing and was promoted to the rank of captain. After leaving the service in July, 1919, he again joined the Mountain States Telephone & Telegraph Company as assistant valuation engineer, with offices in Denver, where he remained until his appointment as superintendent of shops of the Inter Mountain Electric Company in Salt Lake City, in February, 1920. In October, 1920, Mr. Hannibal accepted his present position with the Interstate Utilities Company of Spokane.

T. E. Bibbins, president, and **D. E. Harris,** vice-president and general sales manager of the Pacific States Electric Company, recently left San Francisco on an extended trip through the Pacific Northwest. All of the offices of the company will be visited by the two executives.

H. Birchard Taylor, president of the Pelton Water Wheel Company, has returned to Philadelphia after making quite an extended visit in San Francisco. Mr. Taylor spent considerable time in San Francisco inspecting the shops of the Pelton company.

Ralph B. Clapp, of the firm of Clapp & LaMoree, Los Angeles, manufacturers' agents, is in the East visiting the various factories which his firm represents in this section. Mr. Clapp expects to visit Chicago, New York, Pittsburg, Boston and other eastern cities.

Trade Outlook

San Francisco

While the death of President Harding with the consequent closing of business houses has caused some slowing up of all markets in the San Francisco district, no permanent depression appears to have resulted. Business leaders have expressed their confidence in the continued prosperity in all lines.

The retail field shows some advance over the past few weeks, probably due to the close of the vacation period—in general business compares favorably with the corresponding period of the preceding year. Prices for grain and dried fruit have been unsatisfactory, with the result that activities in this line have slowed down somewhat, but industries are active and sales in metal goods and machinery in general have been extensive. Out of town collections are reported somewhat slow, undoubtedly reflecting the agricultural situation.

Building permits continue large, particularly of residences of the medium type, and there is considerable movement in construction materials. The Coast furniture dealers' convention held here during the last weeks of July stimulated buying of household equipment, and considerable interest is being shown in the National Retail Furniture Dealers' Convention which is scheduled for the coming month.

Los Angeles

A slowing up in the purchase of retail electrical apparatus and appliances was noted for the last half of July, but this was only to be expected at this season. The sales continued good and the showing is above other years. The sale of radio apparatus, including sets, parts and supplies has been far ahead of the corresponding period of last year; this has been one of the outstanding features in electrical retailing all summer.

During the last week of July and the first week of August the local electrical jobbing houses experienced a slight falling off in their accustomed sales, in large measure due to the fact that during that period practically the entire sales force were on vacation. The continued building activity which shows no signs of letting up is responsible for large demands for wiring devices and supplies. The stock situation is much improved, and now even conduit which for such a long period of time was so scarce is obtainable in quantity to satisfy the huge demands.

Manufacturers report the usual activity, with good supply of stock and excellent sales.

The supply of labor is good at this time with a temporary surplus in the building trade which is due to heavy influx from other communities.

Salt Lake City

Resources of Utah state banks and trust companies have passed the $100,000,000 mark, according to figures recently issued by the state bank commissioner, the increase over the preceding quarter amounting to nearly $2,500,000.

Salt Lake City is in the midst of a building boom that promises to assume unusually large proportions before the summer is over. Figures for July show that the value of construction for which permits were issued during the month far exceeds the value for the corresponding month of last year and the preceding month this year.

General jobbing and wholesale trade in Salt Lake City and adjacent territory has greatly improved since 1922. Retail business, though slower, displays a slight advance. Manufacturing and industry are active and collections are continuing to improve.

Electrical dealers are intensifying their efforts in the sale of seasonal appliances such as fans, ranges, etc., and a fair amount of business is reported.

Mining operations continue to be on an extensive scale. There is every indication of continued and increasing activity in business and industry.

Denver

Business conditions in Colorado continue on a steady and prosperous basis. In most of the metal mining sections, conditions have improved, creating a good demand for mining and smelting machinery along with the necessary electrical equipment. The majority of the coal mines, however, are operating on a part time schedule due to the low seasonal demands. In the agricultural sections favorable reports are based on increased acreage in crops over that of last year together with good weather conditions, although recent drops in market prices have proved discouraging to the farmers.

Building activities are more or less confined to the larger cities, especially Denver where in July, 571 permits were issued for $1,416,000 worth of buildings contrasted with 520 permits in July, 1922, for a $1,097,000 program of construction. Construction for the first seven months of the year totals $12,950,450, an increase of $2,621,000 over the same period in 1922.

Energy output of most central stations in the state continues to increase, necessitating material improvements and additions to generating and transmission facilities. Small heating appliance sales are slow and fan business is only normal. A good movement in electric ranges is reported out in the state.

Spokane

Business conditions are experiencing the usual summer lull, but with the prospects of good crops, a good fall is anticipated. Fruit growers in Spokane Valley disposed of a large berry crop through a pool operated by the growers' union, amounting to a total of $100,000. Some of the individuals netted as high as $300 per acre. The apple crop is expected to be about 50 per cent normal. The wheat harvesting has begun, and the calls for labor have just about been met.

Lumbering continues strong, although Spokane factories are running light just now. A resumption of activity is expected within another 60 days. Four large plants handling wood products are to be erected in this vicinity in the near future.

Total building permits for the first half of 1923 amounted to $1,505,290, which the Spokane Chronicle stated exceeded the record of all other northwestern cities except Seattle and Portland. Total for Spokane up to Aug. 1, was $1,686,935.

Mining activities continue at the same high rate set early in the year. A severe blow to the Coeur d'Alene District was received on July 14 when the towns of Burke and Mace, Idaho, were completely destroyed by fire. The Hecla Mine, one of the largest lead producers, was shut down as a result of losses and damage sustained by them, but they began reconstruction without delay, and will be under production by next spring.

Seattle

Business on the whole has been quiet. although satisfactory showing is made for this season of the year. Unstable prices in the wheat market tend to inject an element of caution in all rural sales. The western steel trade continues active and distribution and industry as a whole are in a more favorable position than for three years past at this season. The Northwest salmon pack gives indications of making a satisfactory showing this year throughout the entire district.

The lumber business continues active. Production has been maintained 17 per cent above normal and a slightly stronger tone is evident in the lumber market. Shipments and cut are reported below orders accepted during the past two weeks.

Building operations are particularly active in the field of residences and apartment houses. A 25 per cent increase in the building materials industries has already been recorded for this year, as compared for the corresponding months of 1922.

Portland

The warm days have brought with them the usual summer slump in retail buying. Orders for ranges, however, are holding up well. Electrical jobbers report some falling off of wiring materials which agrees closely with the slowing up of building. It is expected that July totals for building permits will fall considerably short of June but will exceed July of last year.

Reports from the West Coast Lumbermen's Association show that lumber manufacturers are slow to reduce production. The mills continue to turn out lumber well above the normal rate. Orders have fallen off somewhat, but are still above normal and prices remain high enough to give a nice profit. A survey of stocks on hand in the mill yards show stocks far below normal. Lumber production will not be reduced until stocks have been replenished.

The situation with the wheat growers is a serious one. Prices are said to be below the cost of production. Crops are good but the situation generally is unsatisfactory.